

# Morro Bay State Park

## INTERPRETATION MASTER PLAN



April 2016



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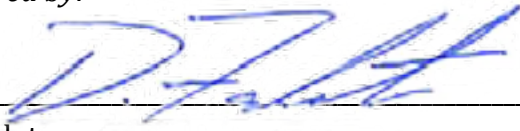
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*Cover Photo: Morro Rock estuary and ocean*  
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# Morro Bay State Park

## **INTERPRETATION MASTER PLAN**

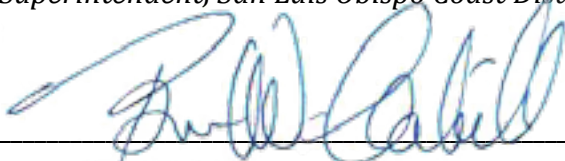
*Approved by:*



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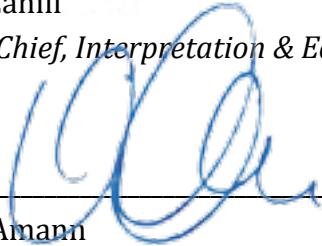
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## EXECUTIVE SUMMARY

### *Agency*

State of California, Department of Parks and Recreation, San Luis Obispo Coast District, Morro Bay State Park (SP)

### *Project Title*

Morro Bay State Park Interpretation Master Plan

### *Project Description*

The Interpretation Master Plan (IMP) was developed collaboratively by a team of California State Parks' staff, management, partners, and other stakeholders. It builds on previous planning documents, and provides the themes, goals, objectives, and strategies that will guide the park's interpretive and educational services for the next two decades.

### *Planning Process*

The Morro Bay State Park Interpretation Master Plan was produced with Proposition 84 bond funds allocated by the DPR Interpretation and Education office in July 2011. Over the following year, the planning team conducted research, identified the park's significant resources and stories, surveyed visitors, and conducted stakeholder workshops. Working from this information, the core team then drafted an interpretive mission and vision for the park, as well as themes, goals, objectives, and strategies. The next step was to develop recommendations for new and continuing interpretive services, which are laid out in the Interpretation Action Plan. The final step is to implement the plan and review and update it periodically.

### *Project Findings*

Morro Bay State Park currently offers a variety of interpretive and educational services that visitors and educators

find satisfactory. However, there is great potential for the park to expand and improve its offerings. Increasing and improving non-personal interpretation, adding new front-line interpretive programs, updating and expanding educational services, improving community outreach and partnerships, and merging interpretation with the recreational activities that draw so many people to Morro Bay SP are key tasks for the park.

### *Recommendations*

The plan contains goals and objectives for what interpretation should accomplish, as well as strategies and tasks for accomplishing these. Many of the tasks can be implemented with current staffing levels. However, for the park to truly reach its interpretive potential will require the addition of staff and volunteers as well as sources of funding beyond those currently allocated in the annual budget. The easier-to-implement projects are identified as taking place during phase one (2014-2020). The high-priority, more costly or time-consuming tasks are slated for phase two (2021-2027). Tasks requiring additional staff are slated for phase 3 (2028-2034). If, however, funds or positions become available earlier than anticipated, projects may be accomplished earlier than projected in this document.



## ACKNOWLEDGEMENTS

The creation of an IMP is a community effort. It is not the work of a single individual, but reflects the knowledge, interest, and passion of numerous individuals with diverse backgrounds and concerns. By bringing these individuals together, we have produced a well-rounded and carefully thought-out plan that will guide interpretation at Morro Bay State Park for the next two decades.

The plan would not exist without the hard work and commitment of the Morro Bay State Park staff and management, as well as the active participation of the Central Coast State Parks Association (CCSPA), volunteers, and other stakeholders. The core team met on more than a half-dozen occasions to review content, discuss concepts, and brainstorm ideas. Stakeholders attended two several hour long community meetings where they shared ideas and worked together to identify priorities. Hundreds of visitors took time from their vacation to answer questions to help improve the park's interpretive services. Teachers from throughout the state returned questionnaires to help the park develop its educational programming. The Interpretation and Education Division in Sacramento allocated the funding for the plan and provided crucial review and comment and the Museum and Interpretation Section of the Northern Service Center worked with park staff to develop the ideas and write the plan.

To be a success, the plan will continue to need the support of MBSP staff and management, as well as the park's partners and stakeholders. This document is just the beginning, making it a reality will be the true accomplishment.





# CONTENTS

EXECUTIVE SUMMARY	iii
ACKNOWLEDGEMENTS	v
CONTENTS	vii
FIGURES	ix
TABLES	xi
Chapter 1: Introduction	1
1.1 Park Overview	1
1.2 Plan Purpose	4
1.3 Planning Process	4
1.4 Park Planning History	5
Chapter 2: Planning Foundation	9
2.1 Park Resources	9
2.1.1 Interpretive Significance	9
2.1.2 Natural Resources	10
2.1.3 Cultural Resources	17
2.1.4 Esthetic Resources	21
2.1.5 Recreational Resources	21
2.2 Existing Interpretation	21
2.2.1 Non-Personal Interpretive Services	21
2.2.2 Personal Interpretive Services	23
2.2.3 Collections	24
2.2.4 Educational Services	25
2.2.5 Interpretive Readiness	25
2.2.6 Partnerships	26
2.2.7 Interpretive Concessions	26
2.2.8 Marketing	27
2.2.9 Research Resources	27
2.3 Local and Regional Influences	27
2.3.1 Community Involvement	27
2.3.2 Other Interpretation Providers	28
2.4 Visitation and Visitor Use	29
2.4.1 Visitor Synopsis	29
2.4.2 Visitor Access and Circulation	34
2.4.3 Visitor Expectations and Experience	35

Chapter 3: Analysis	39
3.1 Resources	39
3.2 Existing Interpretation	40
3.3 Visitation and Visitor Use	45
Chapter 4: Interpretive Direction	49
4.1 Mission and Vision Statements	49
4.2 Interpretive Goals	50
4.3 Interpretive Themes and Periods	50
4.3.1 Unifying Theme	50
4.3.2 Primary Themes	51
4.3.3 Secondary Themes	52
4.3.4 Interpretive Periods	53
4.4 Educational Framework	53
Chapter 5: Recommendations	57
5.1 Goals, Objectives, and Strategies	57
Chapter 6: Interpretation Action Plan	63
6.1 Overview	63
6.2 Task Matrix	66
6.3 Interpretation Project and Program Proposals	97
6.3.1 Non-Personal Media	97
6.3.2 Facilities and Infrastructure Improvements	105
6.3.3 Educational Services	107
6.3.4 Frontline/Personal Interpretation	108
6.3.5 Community Outreach	110
Appendix A: Stakeholder Meeting Notes	115
Appendix B: Survey Conclusions and Recommendations	125
Appendix C: Survey Instruments	129
Appendix D: 1988 General Plan Interpretive Themes and Recommendations	151
Appendix E: Museum Restoration Plan Species Lists	157
Appendix F: Morro Bay Museum of Natural History Scope of Collections Statement	175
Appendix G: Museum Restoration Plan Interpretive Guidelines	189
Appendix H: History-Social Science Content Standards	191
Appendix I: Next Generation Science Standards	197
Appendix J: EEI Curriculum	201

# FIGURES

Figure 1. California coast map	1
Figure 2. Morro Bay State Park map	2
Figure 3. Morro Rock © Michael Baird	3
Figure 4. Morro Shoulderband Snail	3
Figure 5. Morro Rock before the causeway	11
Figure 6. Morro Bay Watershed	11
Figure 7. Associated Points of Interest	18
Figure 8. Heron Rookery Panels	22
Figure 9. Museum Wayside Panel	22
Figure 10. Campground entrance low-profile panel	22
Figure 11. CCC rock pillars	34
Figure 12. Morro Rock regulatory signs	41
Figure 13. Morro Rock regulatory signs	41
Figure 14. Morro Rock regulatory sign	41
Figure 15. Morro Rock regulatory sign	41
Figure 16. Morro Rock panel shelter with regulatory signs	42
Figure 17. Custom Save the Rock panel	42
Figure 18. Custom Campground CCC panel	42
Figure 19. Statewide Campground CCC panel	43
Figure 20. Statewide Campground panel	43
Figure 21. Morro Rock interpretive panel	43
Figure 22. Cerro Cabrillo Trailhead panel	43
Figure 23. Morro Rock with low-profile panels concept	97
Figure 24. Park Entrance sign concept for Morro Rock	97
Figure 25. partially empty panel shelter	99
Figure 26. Black Hill panel concept	100
Figure 27. Interpretive Panel and Park Information space	101
Figure 28. Heron Rookery panel shelter underutilized side	101
Figure 29. Marina Sign	102
Figure 30. Marina Sign	102
Figure 31. Morro Estuary from Cerro Cabrillo	103
Figure 32. Looking inland from Cerro Cabrillo	103
Figure 33. Cerro Cabrillo Day Use Sign	103
Figure 34. Cerro Cabrillo Park Entrance sign concept	104



# TABLES

Table 1. Core IMP Team	4
Table 2. Plant Communities	13
Table 3. Sensitive Plants	15
Table 4. Introduced Plant Species	16
Table 5. Biotic Communities	16
Table 6. Animal Species of Special Concern	17
Table 7. Visitor Demographics	30
Table 8. Park Destinations	30
Table 9. Topics of Interest	30
Table 10. Preferred Interpretive Services	31
Table 11. Most Likely to Improve Park Interpretive Experience	31
Table 12. Teacher Demographics	32
Table 13. Topics of Interest (Teacher Provided)	32
Table 14. Topics of Interest (Park Provided)	33
Table 15. Pre-visit Material Types	33
Table 16. Pre-visit Lesson Desired Characteristics	33
Table 17. Preferred Educational Programming	33
Table 18. What the park can do to improve the visit	35



## CHAPTER 1: INTRODUCTION

*Chapter One provides an overview of Morro Bay State Park's location, history, and key resources and of the process used to develop the Interpretation Master Plan (IMP).*

### 1.1 Park Overview

Morro Bay State Park (SP), located along California's picturesque central coast, is one of the oldest parks in the California State Parks (DPR) system. Located in San Luis Obispo County in the city of Morro Bay, the park lies 12 miles northwest of the city of San Luis Obispo, roughly four hours north of Los Angeles and four hours south of San Francisco (*figure 1*).

The park features scenic and ecologically significant estuarine and upland habitats. It provides a home to threatened and endangered species and is known as one of the best bird watching locations on the California coast. Morro Rock is one of the most iconic and popular destinations on the California central coast. Hiking trails and the Museum of Natural History are also popular destinations in the park.

The Morro Bay area has been a home to people for millennia. The first inhabitants of the region were Native Americans, including the ancestors of the tribes known today as the Northern Chumash and Salinan. Spanish explorers first noted Morro Rock in 1542, when Juan Cabrillo sailed past the bay. Two hundred years later, in 1769, Gaspar de Portolá led the first overland expedition. Spanish



**Figure 1.** California coast map

missionaries followed soon after. They established missions which significantly impacted the lives and traditions of the local indigenous people. Following Mexico's independence from Spain in 1821, the missions were secularized and their lands distributed among private landowners. Several large land grants were made in the Morro Bay area. Morro Bay SP and city of Morro Bay are located within the boundaries of the former *Rancho San Bernardo* and *Rancho Cañada de los Osos y Pecho y Islay*. With the dissolution of the missions, surviving indigenous people either returned to their former villages or worked as *vaqueros* on the *ranchos*.

By the 1890s, Morro Bay had become a popular tourist destination, and the town began to grow. The economic crash of 1929, and the subsequent Great Depression, led to economic hardship in the Morro Bay region. This economic

downturn was largely responsible for the creation of the park. In 1934, at the urging of local residents, the state of California purchased 1,500 acres from the bankrupt Cerro Cabrillo Country Club. Morro Bay SP was officially classified as a state park in 1963; its General Plan was completed in 1988.

Over the last century, the park has grown from 1,500 to nearly 3,000 acres. Today, it consists of three non-contiguous parcels which encompass a variety of natural, cultural, and recreational resources. For ease of description, the three parcels have been divided into six areas (*figure 2*).

Area A consists of the northernmost parcel. It is home to the iconic Morro Rock (*figure 3*).

Acquired in 1935, the prominent site is sacred to the Salinan and Chumash people



Figure 2. Morro Bay State Park map



and an important nesting site for birds. It is also the most highly visited park site.



**Figure 3.** Morro Rock © Michael Baird

Morro Rock is classified as a State Natural Preserve and a State Historical Landmark. While the rock itself is closed to recreation, a city beach immediately to the north provides opportunities for swimming, surfing, sand castle building, sun bathing, and picnicking.

A second parcel lies just south of the City of Morro Bay. This is the largest of the three parcels, and is described here as Areas B, C, D, and E.

Area B comprises the park core. It includes a 1920s-era golf course, Black Hill, a Civilian Conservation Corps (CCC)-constructed campground, the Heron Rookery Natural Preserve, the Morro Bay Museum of Natural History, a marina, and campfire center. It is the second most heavily visited area after Morro Rock and offers a variety of recreational opportunities.

Area C is comprised of marsh and wetland habitats. It is in a mostly natural state and receives limited visitation.

Area D contains upland habitats including Cerro Cabrillo, an ancient volcanic plug that is the park's highest point (911 ft. above sea level).<sup>1</sup> Hikers and rock climbers are the most common users.

Area E is comprised of the waters immediately south of the salt marsh. This area is designated a State Marine Reserve (SMR) and is part of California's statewide network of Marine Protected Areas. As an SMR, no damage or take of living marine resources, geologic, or cultural resources is allowed; however, visitors may access it by boat.<sup>2</sup>

Area F is the third and southernmost parcel. Known internally as the Powell Property, it was acquired in 2000, primarily to provide habitat for the federally listed Morro shoulderband snail (*figure 4*).



**Figure 4.** Morro Shoulderband Snail

The property is largely undeveloped, although equestrians and paintball enthusiasts have created a number of volunteer trails.

The development of park infrastructure and visitor amenities has been a work in progress for nearly a century. Within less than six months of the property's acquisition by the state, a CCC camp was established at what is now the campground. Over the next five years, the CCC and Work Projects Administration (WPA) did extensive work building trails, campsites, picnic areas, drainage projects, and rest rooms. In the decade following World War II, a marina was dredged, the golf course expanded to 18 holes, and plans were made to build a Museum

of Natural History. The museum was dedicated in 1962. This early construction forms much of the infrastructure still found in the park core.

Although construction slowed in the latter half of the 20th century, the park continues to develop. New museum exhibits and campground upgrades were completed in the first decade of the 21st century. In 2012, an accessible trail and boardwalk were constructed near the marina.

## 1.2 Plan Purpose

The Interpretation Master Plan (IMP) is a long-range plan for interpretation and education at Morro Bay SP. It is intended to provide guidance on interpretive services through 2034. The IMP addresses the interpretive needs of both Morro Bay SP and its visitors. It provides information on visitor demographics and interests; defines interpretive goals, objectives, and themes; and provides recommendations for improving interpretative services. These recommendations are designed to be phased in over the next two decades.

The IMP also includes an Action Plan. The Action Plan proposes 23 interpretive services for the park to implement over the next 20 years. Each proposal includes a broad scope of work and identifies the IMP goals, objectives, strategies, and tasks that it fulfills. The information contained in the action plan can be used to help identify funding sources, draft grant or other funding proposals, and develop benchmarks for evaluation.

## 1.3 Planning Process

The Morro Bay SP IMP began in July 2011 and was completed in October 2015. It was a collaborative process involving State Parks staff from the Northern Service Center (NSC), Morro Bay SP, and San Luis Obispo Coast District (SLOCD).

In addition to State Parks staff, the core planning team also included the executive director of the park’s cooperating association and a representative from the park’s docent council (*table 1*).

**Table 1.** Core IMP Team

Kathy Schulz	Regional Interpretive Specialist, NSC
Katie Metraux	Regional Interpretive Specialist, NSC
Rouvaishyana	Interpreter II, Museum Manager, Morro Bay SP
Cara O’Brien	Interpreter II, SLOCD
Brooke Gutierrez	Sector Superintendent, Morro Bay SP
Robyn Chase	Park Interpretive Specialist, Morro Bay SP
Mary Golden	Executive Director, CCSPA
Shanda Grunkemeyer-Gibbs	Docent, Past Docent Council Vice President

The core team met in person on six occasions and communicated throughout the process via phone and e-mail.

Input for the plan was also gathered from the community. Two stakeholder workshops were held, one in November 2011 and the second in May 2012 (*Appendix A for meeting notes*).

To better understand the interests and needs of the park’s visitors, two surveys were administered. The first, an intercept survey, was completed between November 18 and December 30, 2011. Unanticipated results raised concerns that the visitor population in the fall might be significantly

different than in the summer. Therefore, a scaled-down version of this survey was administered August 29 through September 1, 2012 (*Appendices B and C for the survey instruments and reports*).

The other survey was a direct mail survey sent to teachers in January 2012. The surveys were developed and largely administered by J.D. Franz and Associates, a market research firm. The findings of the surveys will be discussed in greater detail in Chapter 2.5: Visitation and Visitor Use.

Once the research was completed and the information compiled, the core team reviewed and analyzed the data. The team used the information gleaned from the visitor surveys, stakeholder meetings, and General Plan to develop the mission, vision, goals, and objectives for interpretation, and new unifying, primary, secondary, and supporting themes. A statement of interpretive significance and refined interpretive periods were also developed using this information.

The team then brainstormed interpretive services, i.e. programs and projects, that the park could offer in order to fulfill its mission and vision and meet its goals and objectives. These ideas were then refined into an Action Plan and presented to the park for review.

Once the core concepts were agreed upon, the writing of the IMP began. The NSC sent three drafts to the core team and park resource specialists for review. The last two drafts were also provided to the State Parks Interpretation and Education Division, and key stakeholders including the Morro Bay National Estuary Program, the Salinan and Chumash tribes, co-op association and docents.

The feedback received was incorporated into the plan and is reflected in this final document.

## 1.4 Park Planning History

The 1988 General Plan is the official guiding document for the park. Other plans and studies have also been written. Some of these are specific to interpretation, others are less so; however, they contain information that can help inform interpretation. The following documents were used as references for this plan.

### *Morro Bay SP General Plan*

The General Plan was adopted in June 1988. It contains the park's Declaration of Purpose, a Resource Element, Land Use and Facilities Element, Interpretive Element, Operations Element, Concessions Element, and Environmental Impact Report.

The Interpretive Element section of the General Plan provides a snapshot of visitor needs and expectations circa 1988; broadly identifies the interpretive period, themes, and resources at the park; and includes proposals and recommendations for interpretation at the park.

By contemporary standards, the themes found in the Interpretive Element would be considered titles or topics. These provided a starting point for the IMP; however, new themes were developed as part of this plan (*Appendix D for General Plan themes and recommendations*).

### *The Interpretive Renovation Plan (IRP)*

In 1990, Morro Bay SP completed an IRP. The IRP contains interpretive themes, topics, and ideas for interpretive media, some of which were incorporated into the museum exhibits in 2002. The plan is useful as a reference document, particularly as it includes extensive lists of organisms found in park habitats, and descriptions of survival adaptations of many of these organisms. (*Appendix E, IRP Species List*).

Additional potentially useful plans and studies include:

Pecho Coast Archeology: A Survey Update.  
April 16, 1987.

Report of Prehistoric Archaeological Site  
Tasks for Preliminary Plan Phase  
of the Morro Bay Campground  
Rehabilitation Project. June 30, 2000.

Archeological Evaluation of CA-SLO-215,  
Within Morro Bay State Park, San Luis  
Obispo County, California. January  
2003.

Historical Contextual Study and  
Determination of Significance of the  
Morro Bay State Park CCC/Postwar  
Administration District: "Marina,  
Campground, and Natural Museum  
Areas" within Morro Bay State Parks  
San Luis Obispo County, California.  
October 28, 2008.

Many of these studies contain references  
to Chumash and Salinan cultural  
resources. Any interpretation of the  
information contained in these documents  
should be done in consultation with the  
district archaeologist and representatives  
from the relevant tribes.

*Endnotes*

1. Morro Bay SP General Plan, 1988
2. The remainder of the estuary waters, while not managed by DPR, are also part of the MPA network. They are managed by the California Department of Fish and Wildlife, as a State Marine Recreational Management Area. This designation restricts the take of living marine resources while allowing for waterfowl hunting. Confusion regarding regulations and often leads to visitors thinking hunting is occurring in Morro Bay State Park. (Park Communication, 7/2011).



## CHAPTER 2: PLANNING FOUNDATION

*Chapter Two provides a “snapshot in time” of the conditions at the park at the time of writing the Interpretation Master Plan (IMP). It contains a summary of park resources, a description of the current state of interpretation and educational programming, identifies other interpretation providers in the local area and summarizes the demographics and interests of current park visitors.*

### 2.1 Park Resources

Morro Bay SP has a wealth of natural, cultural, and recreational resources. Its location on the Central Coast offers a mild climate and beautiful ocean views for much of the year. Common species, and some that are rare or even endemic, are found in the park. The human story stretches back thousands of years. Non-motorized recreation opportunities from boating to hiking to birdwatching are available.

#### 2.1.1 Interpretive Significance

As the park’s General Plan does not contain a Statement of Interpretive Significance the following statement was developed as part of the IMP process:

Morro Bay SP is known for its beauty and wealth of natural resources. The prominent rock that stands at the mouth of the bay has long been a significant feature on the California central coast. Native Americans consider it a sacred place. Since the time of the Spanish explorers, it has served as a landmark for mariners sailing along California’s coast. Today, it is a major tourist attraction. Morro Rock also provides habitat for sensitive lichen and plant communities and is a sanctuary for birds. Hundreds of

birds nest on it annually, and in the 1960s it was one of the last refuges in the United States for the peregrine falcon.

The Morro Bay region has a high diversity of easily watchable wildlife. Species diversity is highest in winter; however, population numbers are highest in the summer. The bay, technically an estuary, is a nursery for young fish, and provides a refuge for many species from strong ocean waves. The marshes, uplands, and *morros* surrounding the bay provide numerous habitats and resources on which both animals and people rely.

Numerous sensitive species make their homes in Morro Bay SP. The Heron Rookery Natural Preserve is a nesting and roosting site for egrets, cormorants, and herons. Eelgrass in the estuary provides an overwintering site for Brant. Peregrine falcons nest on Morro Rock, and are an endangered species success story. Other endangered and sensitive species also make their home in and around the park. Monarch and Morro blue butterflies, sea otters, tidewater gobies, steelhead trout, and California brown pelicans are a few of the additional sensitive species that live here.

The park also has a rich cultural history. While it is not as obvious to the casual observer as the wealth of natural resources, it merits interpretation. The Morro Bay region has over 10,000 years of documented human history. The earliest known residents were the ancestors of the Salinan and Northern Chumash people. These early residents lived in settlements near the bay. Today, many descendants live in or visit the region. Morro Rock—*Le’saamo* to the Salinan<sup>1</sup> and *Lisamu* to the Northern Chumash<sup>2</sup>—remains a sacred site to both tribes.

While the coastal area received little use during the Spanish Mission period, after Mexico gained its independence from Spain, *ranchos* were established. In the

late 1800s, Morro Bay became a tourist destination. When the Great Depression struck, Morro Bay SP was established on the site of a bankrupt country club. One of the earliest Civilian Conservation Corps (CCC) camps in California was established in the park, and many of the structures they built are still used by visitors over half a century later.

### 2.1.2 Natural Resources

Morro Bay SP is rich in natural resources. Like other natural environments in California, those at Morro Bay SP have been significantly altered over the past 150 years. These modifications have affected the park's topography, wildlife, and plants. Floral and faunal compositions have changed as certain populations have decreased (e.g. peregrine falcon and sea otter), completely disappeared (e.g. grizzly bear), or as new species have been introduced (e.g. eucalyptus). Quarrying and the construction of breakwaters have reshaped the land. Regardless of these changes, the park still provides a valuable place for many plants and animals to live, and a variety of natural environments for people to enjoy. The following paragraphs summarize the status of the Morro Bay SP natural resources at the time of writing the IMP. Additional details can be found in the 1988 General Plan, which, unless otherwise noted, was the source for this section. Specific, up-to-date information on sensitive species and flora and fauna guides are available from the Morro Bay National Estuary Program.

#### *Topography and Geology*

Morro Bay SP is located on the central California coast, in the southern end of the Coast Ranges Geomorphic Province. The park includes over 2,700 acres of varied topography ranging from sea level to 991 feet above sea level. The topography of Morro Bay SP formed through various geologic processes that have occurred over tens of millions of

years. Like much of coastal California, Morro Bay SP is underlain by Franciscan rocks.<sup>3</sup> Exposed rocks include greywacke, chert, serpentinite, weathered diabase, and basalt. A blanket of recent sand and alluvium stream deposits covers most of the lowlands of Morro Bay SP. The golf course and campground were built on top of these young deposits.

One of the defining features of this region is a series of nine volcanic plugs known as "*morros*," from the Spanish term for turban- or dome-shaped rock. Known as the Morro Rock-Islay Hill complex, the ancient rocks form a 17-mile ridge running from Morro Rock toward San Luis Obispo. Three of the prominent domes lie within the boundaries of Morro Bay SP. These are, from west to east, Morro Rock, a primary draw for visitors to the central coast; Black Hill, which stands above the golf course and campground; and Cerro Cabrillo, the highest point in the park.

The age of the volcanic plugs is between 22 and 26 million years. Their origins, the mechanism for their intrusion, the reason for their linearity, and their connection with the "big picture" of plate tectonics, hot spots and plate-to-plate interactions are not fully understood by geologists. The morros are located on a terrane, a fragment of crustal material torn from one tectonic plate and accreted onto another. The morros are thought to have formed roughly 100 miles southeast of Morro Bay. In fact, except for the recent stream and sand deposits, all of the geological material originated far to the southeast, and has since migrated along strike-slip transform faults northwestward to its current location.

This landscape, which took millions of years to form, has been significantly altered in the past 100 years through human industry. Possibly the most notable topographic change has been to Morro Rock. Until the 20th century, the rock was essentially an offshore island (*figure 5*),



although seasonal sand deposits would connect the rock to the mainland during low tides.



**Figure 5.** Morro Rock before the causeway

Between 1933 and 1935, WPA laborers built a causeway to join Morro Rock to the mainland. Connecting Morro Rock to the mainland changed the sand dispersal patterns, trapping sand in the bay instead of allowing it to disperse in the ocean. These increases in sediment require the harbor to be dredged so that boats can continue to use it. The rock also served as a quarry even after its inclusion in the state park. Additional quarries were also operated near Cerro Cabrillo.

The salt marshes and bay have also been modified. Breakwaters were constructed to protect and define the harbor entrance. In recent years, construction, grazing, and other human activities have increased the sediment load to the upper coastal salt marsh. As a result, much of it now sits above the high tide level. This has resulted in the incursion of non-native plants into the salt marsh.

### *Weather and Climate*

The Morro Bay area experiences the Mediterranean climate typical of California. This includes year-round mild temperatures with little diurnal fluctuation; cool, moist winters; and warm, dry summers. Low clouds and fog often occur along the coast during the summer.

The average annual temperature ranges from 56°-60°F, with summer maxima of 65°-70°F, and winter maxima in the 50s or low 60s. There are usually 40 to 50 days per year with measurable precipitation; approximately 17" of rainfall are measured annually at Morro Bay. The air quality is generally excellent due to the prevailing onshore winds that keep pollutants to the east.

Morro Bay was created when the climate warmed and sea levels rose at the end of the Pleistocene/beginning of the Holocene. After holding steady for ~10,000 years, 21st century climate changes may alter established weather patterns.

### *Morro Bay Watershed*

The Morro Bay watershed is a 48,000-acre network of streams and creeks that drains into the estuary (*figure 6*).



**Figure 6.** Morro Bay Watershed

The watershed includes the communities of Morro Bay and Los Osos, Camp San Luis Obispo, Cuesta College, and a significant amount of agricultural open space. Land uses in the watershed include agriculture, ranching, and urban and suburban development. Springs and seeps located high in the morros feed numerous small,

unnamed, intermittent creeks. The principal drainages for Morro Bay are Chorro and Los Osos Creeks. Water from the creeks flows to the fresh and brackish water marshes, through the extensive coastal salt marsh, and finally into the Morro Bay estuary.

Two groundwater basins, the Chorro and Los Osos Valley, lie beneath Morro Bay SP. Their main sources of recharge are rainfall and stream flow. Subsurface flow is seaward. In the past, salt water intrusion has resulted from ground water extractions during dry periods. Changes to precipitation and/or sea level rise associated with climate change may exacerbate the problem of sea water intrusion.

#### *Morro Bay Estuary*

The Morro Bay estuary is a 2,300 acre semi-enclosed body of water. It includes the lower reaches of Chorro and Los Osos creeks, salt and freshwater marshes, intertidal mudflats, eelgrass beds, and other subtidal habitats.

The Chorro Delta, at the mouth of the Los Osos and Chorro creeks, is a well-developed, 470-acre tidal salt marsh that is submersed only at high tides. As you move toward the bay, it transitions to a 1,450-acre mud flat. These mud flats also include several hundred acres of eelgrass (extent and plant density varies year to year), which is one of the most conspicuous and important plants in the bay.<sup>4</sup>

The salt marshes, mud flats and open waters of Morro Bay support diverse and abundant invertebrate fauna, including at least 43 species of polychaete (worms), ghost shrimp, and innkeeper worms. More than two dozen species of bivalves inhabit the bay, as well as nearly 100 species of crabs, over 50 species of gastropods, and 14 species of echinoderms.

The bay is home to numerous species of fish. The estuarine environment serves as a nursery for many juvenile fish. A variety of surf perches, shallow water rockfishes, sharks and rays, and flatfishes also occur here. Target Rock, at the mouth of Morro harbor, has a particularly diverse mix of estuarine and rocky subtidal fish. Coastal creeks and tidal channels contain freshwater and anadromous fishes.

Morro Bay has been designated a state and national estuary due to its high biological value. A portion of the estuary, along with the salt marsh and mud flats that lie between Chorro Creek and Los Osos Creek, have been classified as Morro Bay Estuary Natural Preserve.

The health of the estuary is directly impacted by the watershed that provides it with fresh water and the health of the local community and its economy relies on the estuary. The primary concerns for the estuary include:<sup>5</sup>

- Accelerated sedimentation
- Bacterial contamination
- Elevated nutrient levels
- Toxic pollutants
- Scarce freshwater resources
- Preserving biodiversity
- Environmentally-balanced uses

#### *Flora*

Morro Bay SP is located in the Central Coast region of the California Floristic Province. Eight vegetation types and fifteen corresponding plant communities occur in the park (*table 2*).

**Table 2.** Plant Communities

Vegetation Types	Plant Communities
Valley and foothill grasslands	Introduced annual grassland
	Native perennial grassland
Marshes and emergent wetlands	Coastal salt marsh
	Coastal freshwater marsh
	Coastal brackish marsh
Coastal scrub	Coastal sage scrub
	Central coastal scrub
	Coastal dune scrub
	Dune oak scrub
	Maritime chaparral
Broadleaf evergreen forest	Live oak forest
	Blue gum forest (exotic)
Streambank woodland and forest	Willow/cottonwood riparian forest
	Willow thicket
Closed-cone coniferous forest	Monterey pine forest
Exotic mixed-species forest	Mixed species forest
Lichen communities	Maritime lichen communities

*Valley and Foothill Grasslands*

**Introduced annual grassland** is found in the vicinity of Cerro Cabrillo and on the slopes of Park Ridge. Dominant species include slender wild oat (*Avena barbata*), softchess (*Bromus hordeaceus*), and foxtail (*Hordeum leporinum*).

A large area of native **perennial grassland** occurs in the Cerro Cabrillo/Park Ridge area of the unit. Stands of

native bunchgrass can still be found throughout the park, including on portions of Cerro Cabrillo. In this community, purple needlegrass (*Stipa pulchra*) is the dominant species. Pine blue grass (*Poa scabrella*) is also found in this location, and is interspersed with shrubs on north-facing slopes.

*Marshes and Emergent Wetlands*

The Morro Bay wetlands are composed of three major plant communities: coastal salt marsh, coastal brackish marsh, and coastal freshwater marsh. Sedimentation, local topography, levels of soil salinity, and nutrient availability affect the distribution of marsh species.<sup>6</sup>

The **coastal salt marsh** is the principal plant community. This community occurs in a harsh environment characterized by periodic tidal inundation and relatively high levels of soil salinity. Dominant species are pickleweed (*Salicornia spp.*), jaumea (*Jaumea carnosa*), arrow grass (*Triglochin concinna*), and sea lavender (*Limonium californicum*).

**Coastal brackish marsh** is characterized by variable salinity levels that increase at high tide and during periods of low freshwater input. Dominant species include jaumea, pickleweed, saltgrass (*Distichlis spicata*), bog rush (*Juncus var. bn. pacificus*), and bulrush (*Scirpus spp.*). Ditch grass (*Ruppia maritima*) is common in the estuary channels.

**Freshwater marsh** occurs on the south shore of Los Osos Creek in areas not subject to tidal flows. Wild rye (*Elymus triticoides*) forms a dense stand in this area. Other freshwater marsh species include beach silverweed (*Potentilla anserine ssp. pacifica*), cattail (*Typha latifolia*), bulrush (*Scirpus spp.*), and Douglas' coyotebrush (*Baccharis douglasii*).

### *Coastal Scrub*

**Coastal sage scrub** occurs on steep south-facing rocky slopes in areas having thin soil and good drainage. Coastal sage scrub, often called "soft chaparral," is composed of dense, drought-resistant, deciduous species that have affinities to interior and semi-desert regions. Representative species include California sagebrush (*Artemisia californica*), black sage (*Salvia mellifera*), and sticky bush monkey-flower (*Mimulus aurantiacus*). At Morro Bay SP, coastal sage scrub occurs on Black Hill and on Cerro Cabrillo.

**Coastal dune scrub** communities are the dominant habitat type of the Morro Dunes Complex. The plants that make up this community are able to tolerate the salt-laden breezes and nutrient-poor, dry soils, which limit vegetation on the dunes.<sup>7</sup> Coastal dune scrub communities are dominated by shrubby vegetation. Common species include: California sagebrush, coyote bush (*Baccharis pilularis*), mock heather (*Ericameria ericoides*), coastal buckwheat (*Eriogonum parvifolium*), poison oak (*Toxicodendron diversilobum*), and toyon (*Heteromeles arbutifolia*).<sup>8</sup>

**Central coastal scrub** is composed of dense shrubs and occurs in areas having greater available moisture than those dominated by coastal sage scrub. Typical coastal scrub species are coyote brush (*Baccharis pilularis ssp. consanguinea*) and poison oak. In the unit, central coastal scrub occurs on the upland periphery of the wetland, and in moist drainages along Park Ridge.

**Dune oak scrub** is characterized by shrubs interspersed with shrub-like coast live oak (*Quercus agrifolia*). Associated species include holly-leaf cherry (*Prunus ilicifolia*), sand almond (*Prunus fasciculata var. punctata*), and Morro manzanita (*Arctostaphylos morroensis*). Shrubs can grow 6' to 8' high and can be dense and impenetrable. In the unit, dune oak scrub

occurs on upland terraces along the south shore of Los Osos Creek.

**Maritime Chaparral** is a manzanita-dominated association found only in relatively small patches near the coast. It is one of the rarest and most threatened vegetation communities in California. The stands of maritime chaparral located in the Morro Bay area are one of the few remaining in the state.<sup>9</sup> Maritime chaparral typically inhabits sandy soils of stabilized sand dunes and often forms a mosaic with coastal prairie, coastal dune scrub, coastal scrub and coast live oak woodland.

Common species of maritime chaparral within the Morro Bay area include: chamise (*Adenostoma fasciculata*), Morro manzanita, Oso manzanita (*Arctostaphylos osoensis*), coffee berry (*Rhamnus californica*), and wedgeleaf ceanothus (*Ceanothus cuneatus*).<sup>10</sup>

### *Broadleaf, Evergreen Forest*

**Coast live oak** forms small forests on the north-facing bank of Los Osos Creek, in seasonal drainages near Cerro Cabrillo, and on old stabilized sand dunes adjacent to the golf course. Trees are 20' to 25' high, and multi-trunked. Understory species include bracken fern (*Pteridium aquilinum var. pubescens*), poison oak, and annual and perennial grasses.

A dense forest of **non-native eucalyptus** has become established in the vicinity of the Grove Office in the park. Scattered stands of eucalyptus are also established on Black Hill, White Point, at the Heron Rookery Natural Preserve, and adjacent to the wetland. The understory is typically sparse, although tree litter is deep.

### *Streambank Woodland and Forest*

A stratified **riparian forest** dominated by black cottonwood (*Populus trichocarpa*), red willow (*Salix lasiandra*), and arroyo

willow (*Salix lasiolepis*) occurs along Los Osos Creek at the southeastern boundary of the unit. Canopy trees are about 30' high. Mid-canopy species include blue elderberry (*Sambucus mexicana*), California wax myrtle (*Myrica californica*), and western dogwood (*Cornus stolonifera*). Twinberry (*Lonicera involucrata*) occurs as a twining shrub. Representative low-canopy species are poison oak, gooseberry (*Ribes spp.*), and blackberry (*Rubus spp.*).

Well-developed **willow thickets** occur on the periphery of the riparian forest along Los Osos and Chorro Creeks, and are composed of dense, even-aged stands of arroyo willow (*Salix lasiolepis*). The willows are approximately 15' to 20' high. Understory species include poison oak, bracken fern, blackberry, and, in several areas, invasive Cape ivy (*Delairea odorata*).

*Closed-cone Coniferous Forest*

**Monterey pine** (*Pinus radiata*) has been introduced into the unit as a landscaping plant. Although native to California, this species is not native to Morro Bay SP. It has become naturalized, and is reproducing as a small forest on the north side of Black Hill.

*Exotic Mixed-species Forest*

The campground has been planted with several species of exotic trees, including Monterey pine, eucalyptus, sycamore (*Platanus spp.*), and prunus (*Prunus spp.*). These trees are of varying height, and form a closed canopy.

*Lichen Communities*<sup>11</sup>

**Maritime lichen** communities are found on rocky outcrops, soils and branches of shrubs and trees, primarily on offshore islands and large sea stacks. Notable lichen communities are found on the north face of Morro Rock. Maritime lichen communities are often dominated by two or three species. Dominant species of the maritime lichens found on Morro

Rock include *Niebla homolea* and *Pseudo parmeliacaperata*.

*Rare Plants*

Several rare plant species grow in Morro Bay SP. The park is home to two rare, endemic species of manzanita: the federally threatened Morro Bay manzanita (*Arctostaphylos morroensis*) and Pecho manzanita (*Arctostaphylos pechoensis*). Habitat which could support the federally endangered salt marsh birdsbeak (*Cordylanthus maritimus ssp. maritimus*) primarily occurs in the coastal brackish marsh; a small patch currently grows on the marina peninsula, near the Marina Peninsula Trail. All three of these species are listed by the California Native Plant Society as rare and endangered CNPS-IB. Additional sensitive plants are listed in table 3:<sup>12</sup>

**Table 3.** Sensitive Plants

Common Name	Taxonomic Designation
California sea-blight	<i>Suaeda californica</i>
Blochman's live-forever	<i>Dudleya blochmaniae</i>
San Luis Obispo morning glory	<i>Calystegia subacaulis ssp. episcopalis</i>
Suffrutescent wallflower	<i>Erysimum insulare var. suffrutescens</i>
Numerous lichen species	

*Introduced Plant Species*

Numerous exotic plants are established at Morro Bay SP. Many, although not all, of these introduced species displace native species and degrade wildlife habitat (*table 4, an asterisk \* indicates that a species is highly invasive and capable of naturalizing*).

**Table 4.** Introduced Plant Species

Common Name	Taxonomic Designation
Blue gum	<i>Eucalyptus globulus*</i>
Monterey pine	<i>Pinus radiata*</i>
Monterey cypress	<i>Hesperocyparis macrocarpa</i>
Castor bean	<i>Ricinis communis</i>
Bailey's acacia	<i>Acacia baileyana*</i>
Hoary cress	<i>Lepidium chalapense*</i>
German ivy	<i>Senecio mikanioidies*</i>
Kikuyu grass	<i>Pennisetum clandestinum</i>
Spearmint	<i>Mentha specata</i>
Prickly pear	<i>Opuntia littoralis</i>
Giant reed	<i>Arundo donax</i>
Ice plant	<i>Carpobrotus edulis*</i>
Veldt grass	<i>Ehrharta calycina</i>
Italian thistle	<i>Carduus pycnocephalus</i>
Fennel	<i>Foeniculum vulgare*</i>
Devil's thorn	<i>Emex spinosa</i>
Annual grasses	<i>Avena spp. Bromus spp. Hordeum spp.</i>
Mustard	<i>Brassica spp.*</i>
Filaree	<i>Erodium spp.</i>

*Fauna*<sup>13</sup>

Morro Bay SP encompasses nine different terrestrial biotic communities, or ecosystems (*table 5*). Many species are able to inhabit, or at least make use of, more than one community. Other, more specialized animals, e.g. amphibians, are restricted by features such as available foods, moisture levels, or other factors.

**Table 5.** Biotic Communities

Habitat Types	Biotic Community
Marsh and wetland habitat	Salt marsh
	Coastal wetland, freshwater, and brackish marshes
Scrub, chaparral, and grassland	Coastal scrub
	Coastal dune chaparral
	Grassland
Woodland	Riparian
	Coast live oak
Non-native and developed	Eucalyptus
	Human development

*Marsh and Wetland*

The **salt marsh** is nutrient-rich and highly productive. It is an important nursery ground for several species of fish and supports numerous shorebirds, migrating waterfowl, and peregrine falcons.

The **coastal wetland** biotic community includes both brackish and freshwater marsh areas. The dense vegetation supports an abundance of wildlife including amphibians, reptiles, birds, and mammals.

*Scrub, Chaparral and Grassland*

The **coastal scrub** biotic community provides a home for many species of birds and mammals, both diurnal and nocturnal.

**Coastal dune chaparral** provides good cover and nesting opportunities for birds, reptiles, and mammals.

The **grassland** community provides abundant food, including seeds and insects, but little cover. Reptiles, birds, and mammals frequent this community.

*Woodland*

The **riparian woodland**, with its constantly available water and dense, diverse vegetation of trees, shrubs, and herbs, provides abundant food and cover for amphibians, birds, and mammals.

The **coast live oak woodland** offers food and cover resources supplied by the trees as well as the resources available from the understory vegetation, which can range from grassland to shrubland. Insects, reptiles, birds, and mammals of all sorts reside in this community.

*Non-native and Developed*

Introduced from Australia, the forests of **blue gum eucalyptus** produce little that can be used as forage by native species of wildlife. However a few species, most notably monarch butterflies and wading birds, use the trees for cover. Monarch butterflies migrate to the Morro Bay area to overwinter. Large groups of monarchs congregate in the dense stands of eucalyptus, which provide access to water, a ready supply of nectar, and protection from winter storms. Great blue herons, black-crowned night herons, and great egrets use the trees for roosting and nesting, particularly in the Heron Rookery Natural Preserve. Turkey vultures use the trees as night roosts.

**Human development** in the park provides habitat for species that are adapted to disturbed environments and are not disturbed by human activities. These include adaptable native species such as raccoons, as well as introduced species like rats and opossum.

*Rare Animals*

Several state (S) or federally (F) listed rare (R), threatened (T), or endangered (E) species live in or around the park.

Listed species known to be present in the park include the Morro shoulderband snail

(*Helminthoglypta walkeriana*) (FT), and tidewater goby (*Eucyclogobius newberryi*) (FT). Additional species “of special concern” live in or near the park (*table 6*). Habitat for the endangered Morro Bay kangaroo rat (*Dipodomys heermanni morroensis*) (FE), (SE) may exist within unit boundaries, although the species has not been documented in many years.

**Table 6.** Animal Species of Special Concern

Common Name	Taxonomic Designation
Morro Bay blue butterfly	<i>Icaricia icarioides moroensis</i>
Willow flycatcher	<i>Empidonax traillii extimus</i>
Cooper’s hawk	<i>Accipiter cooperii</i>
Common loon	<i>Gavia immer</i>
Double-crested cormorant	<i>Phalacrocorax auritus</i>
Burrowing owl	<i>Athene cunicularia</i>
California gull	<i>Larus californicus</i>
Elegant tern	<i>Thalasseus elegans</i>
Coast horned lizard	<i>Phrynosoma blainvillii</i>
Southern steelhead trout	<i>Oncorhynchus mykiss</i> <sup>16</sup>
Southern sea otter	<i>Enhydra lutris nereis</i>

**2.1.3 Cultural Resources**

Perhaps the most important, certainly the most visible cultural site within the boundaries of Morro Bay SP, is the large rock that stands at the mouth of Morro Bay. For thousands of years, Chumash and Salinan people have valued the rock as a sacred place. Master mariner Juan Rodriguez Cabrillo charted it and named it "El Moro" on November 11, 1542; it has served as a landmark for mariners ever since. Early residents and tourists loved to climb it. Beginning in 1890, Morro Rock became a source of

material to build breakwaters and jetties at Port San Luis and Morro Bay. In less than a century, more than a million tons of rock was blasted from its sides and used to construct jetties and other local infrastructure. Public pressure halted the quarrying in 1963. The rock was protected in 1968, when it became a registered California Historical Landmark.

The earliest residents of the Morro Bay area were the ancestors of the Salinan and Northern Chumash people. They have lived around Morro Bay and throughout what is today San Luis Obispo (SLO) county for at least 10,000 years. There are numerous recorded prehistoric archeological sites in Morro Bay SP. Most of the sites are located along the shoreline, reflecting the importance of the estuarine resources to the early people. Bedrock mortars are visible from the trail at White Point, and there appears to have been a small chert quarry within the park. These resources testify to the ability of the estuarine resource base to sustain a large population over a long timespan.

**Archaeological sites are extremely sensitive resources. If and how they may be interpreted will be decided in consultation with representatives of the Chumash and/or Salinan tribes and the District Archaeologist.<sup>15</sup>**

Accounts of the early Spanish explorers depict a sharp contrast between the indigenous groups along the Santa Barbara Channel and those inhabiting the territory north of Point Concepción (figure 7).

These differences included the relative richness of the available resource base, access to deep water fisheries, and socio-political structure. Despite these differences, archeological evidence and early ethnographic accounts indicate that the indigenous people both north and south of Point Concepción shared at least some similar food procurement

and processing strategies (as did most of the indigenous people living along coastal California). An extensive array of traps, nets, disguises, blinds, missiles and projectiles, fishing gear, and vegetable-gathering equipment was used. The wide variety of animals eaten included deer, sea mammals, bear, dog, wolf, fox, puma, skunk, raccoon, rodents, rabbit, moles, eagles, buzzard, snake, fish, and shellfish. Grinding tools, cooking baskets, and drying were a few of the tools and techniques used in food preparation.



Figure 7. Associated Points of Interest

Most indigenous coastal groups fished. Ethnographic accounts and faunal remains from excavated sites indicate that indigenous groups, both along the Channel Coast and north of Point Concepción used weir traps; dip, drag, gill, and seine nets; and hooks and lines to catch fish. Hooks were made from cactus spines, shell, and bone. Spears and harpoons were also used. Indigenous people probably used the kelp fishery year-round. While the Channel Coast Chumash are known for building and using the *tomol* plank canoe beginning around 1200 AD, archaeologists do not believe that the *tomol* was used north of Point Concepción. Instead, the evidence indicates that tule boats and perhaps dugout canoes were used to travel up and down watercourses to procure nearshore marine, riparian, and terrestrial resources.

The first Europeans traveled overland near Morro Bay in 1769 when Don Gaspar de



Portolá led an expedition from San Diego to Monterey in search of suitable sites for missions. One of the Portolá Expedition campsites may have been located in what is now the park. Within three years of Portolá's expedition, the Spanish established missions at San Luis Obispo and San Antonio de Padua (*see figure 7*).<sup>16</sup> These missions were home primarily to the Northern Chumash and Salinan people, respectively. The Spanish missionaries, and the soldiers who accompanied them, came with the dual purpose of converting the Native Americans to Christianity and supporting Spanish colonization. While many California Indians did become neophytes at the missions, others resisted and fled inland.

There is little evidence that the Spanish used Morro Bay or the lands bordering it for much beyond cattle grazing. When Mexico won its independence from Spain, agriculture was established in the region. The missions were secularized and the properties divided into large land grants known as *ranchos*. Some of the surviving Salinan and Northern Chumash people likely worked on the *ranchos*.

*Rancho San Bernardo* and *Rancho Cañada de los Osos y Pecho y Islay* were the two closest *ranchos* to what is now Morro Bay SP.<sup>17</sup> The *ranchos* primarily ran cattle operations. Agriculture continued to be the primary economic activity for the next several decades. The local economy depended on boats to bring in dry goods and to carry crops, animals, and other farm products to cities.<sup>18</sup>

When California became part of the United States, the *ranchos* were broken into smaller parcels. In the late 1800s, James H. White homesteaded the present golf course/campground area of Morro Bay SP. The same year, David H. Harvey patented the land east of Chorro Creek. Both White and Harvey were farmers. A number of owners also held smaller parcels around White Point, Fairbank Point, and north and

west of Black Hill.<sup>19</sup>

Life during this time was not easy. Early homesteaders had to contend with a natural environment ill-suited to permanent dwellings and agriculture. The loose, sandy soil was covered with grease wood and bush lupin. These plants did however, keep the sand in place. When an area was cleared, the winds would blow sand into houses and clog water wells. The few well-traveled streets were in such bad condition that a strong horse could barely pull a light buggy through the deep sand.<sup>20</sup> Despite this, throughout the 1870s, schooners often entered the bay to pick up wool, potatoes, barley, and dairy products.

Franklin Riley founded the town of Morro Bay in 1870. To combat the strong winds, Riley promoted the planting of eucalyptus trees. However, even Riley could do little about the dangerous entrance to the bay. Boats entered the harbor through channels on the north and south side of Morro Rock, which at the time was usually separate from the mainland. High surf, surging tides, and erratic winds gusting around the rock created fear in even the most experienced seamen; shipwrecks were common, even for experienced captains.

The 1st half of the 20th century saw great growth in the region. Improving the harbor was a priority for the citizens of Morro Bay. Quarrying the sides of Morro Rock began in the late 1800s. In 1933, the WPA began construction on a causeway to connect Morro Rock with the mainland. A jetty closed the north entrance to the harbor, the south channel was dredged, and a breakwater protecting the entrance was constructed. The Embarcadero bustled as commercial fishermen brought in huge catches of albacore, salmon, and cod.

By 1930, Morro Bay had a volunteer fire department. Around that same time, Standard Oil Company began a major

operation in Morro Bay, loading and unloading crude oil. In the 1940s, Morro Bay developed an abalone fishing industry. The industry peaked in 1957. While abalone populations have declined to the point where they no longer support commercial fisheries, the town remains a fishing port for halibut, sole, rockfish, albacore, and many other species for both commercial and sport vessels. In addition, oysters are farmed in the shallow back bay. In the 1950s, a large power plant was built near Morro Rock. The plant, with its tall smokestacks, is a prominent feature in the town and on the coast. Although it ceased operations in February 2014, the structure is expected to remain on the landscape for years to come.<sup>21</sup>

During this time Morro Bay also became a beach holiday destination. In 1928, C. E. Miller and E. W. Murphy acquired the property that presently encompasses the golf course and campground. They developed a nine-hole golf course and other features as part of the Cabrillo Country Club. By mid-1929, these facilities were open to the public. However, as the Great Depression took hold, the country club went bankrupt. At the request of locals, the state acquired the land.

During the next several years, the area of the golf course, White Point, and Black Hill were extensively refurbished by the Depression-era CCC and WPA. A CCC camp was established in what is now the campground. The CCC rebuilt the golf course and constructed a campground with picnic tables, fireplaces, water lines, rest rooms, masonry drainage ditches, and ornamental stonework, including the portals at the north entrance of the park.<sup>22</sup>

Infrastructure built by the CCC, including the portal gate, maintenance shop, and comfort station, still exists in the park and have been recorded as significant historic structures. Additional CCC stonework is present throughout the park, including tables, gutters, and stoves.

The CCC designed and built campground is potentially eligible for the National Register of Historic Places.<sup>23</sup>

World War II brought numerous changes to Morro Bay. In 1940, the U.S. Navy began training operations nearby. An amphibious training base (ATB) was initially established as the Morro Bay Section Base for Navy Patrol Force vessels. The base occupied 250 acres of leased or fee purchased land. In September 1944, the ATB acquired a new parcel of land, which later became part of Morro Bay State Park.<sup>24</sup> This parcel was used primarily for housing military personnel. Facility improvements included barracks, officers quarters, a large galley and mess hall, extensive road and grounds improvement, landscaping, a new heating and boiler system, and a recreation area.<sup>25</sup>

Civilians in Morro Bay were also impacted by the war. The anti-Japanese sentiment that swept the country was present here, too. Multiple families were relocated to internment camps.<sup>26</sup>

Throughout the 1950s and 1960s the park underwent significant expansion. In 1949, the marina was excavated, and the golf course reworked and expanded to 18 holes. During this period, most of the CCC camp and the Navy and Coast Guard buildings were torn down. Piers and docks were removed and the area re-landscaped. In the late 1950s, plans were developed for the Museum of Natural History, which was dedicated in 1962. The Cabrillo Clubhouse, which had been the first "park warden's" residence, was moved and adapted for use as staff quarters. In 1968 Morro Rock was declared State Historical Landmark No. 821.

Acquisitions have enlarged Morro Bay SP over the years. The "Fairbank-Ranney Property" (also known as the "Schneider Farm") was purchased in 1973 and is now the Heron Rookery Natural Reserve. Two former cattle ranches, the "Baptista

Ranch" and "Pedro Ranch" were acquired In 1975 and 1982 respectively; today these are known as the Cerro Cabrillo property. Additional acquisitions, most recently the "Powell Property," have brought the park to its current size of nearly 3,000 acres.

### 2.1.4 Esthetic Resources

Morro Bay SP is known for its scenic beauty, complex topography, and diverse vegetation. The proximity of the park to the Pacific Ocean and the presence of the estuary contribute to the scenic resources of this unit. Morro Rock stands like a sentinel on the shore of the ocean, and contrasts dramatically with the adjacent sandspit and inland sweep of salt marsh. The ridges and slopes provide a palette for spring flowers. Small oak forests, with lichen-dappled trees, are quiet sanctuaries. The rush and flow of Chorro and Los Osos Creeks draw visitors into the complex beauty of the saltmarsh. Small runnels from Cerro Cabrillo fall gently over rocks and hillsides colored by poppies and mallow.

Sweeping panoramas can be seen from knolls on Park Ridge and from Black Hill. Black Hill provides extensive views of the salt marsh, bay, Morro Rock and sandspit. Views from Cerro Cabrillo provide a contrast between volcanic outcrops to the east and the expanse of marsh to the west.

### 2.1.5 Recreational Resources

Morro Bay SP offers visitors numerous opportunities to recreate among its scenic beauty. The complex natural resources of the wetland and upland areas provide excellent opportunities for the study of natural history. As part of the Pacific Flyway, Morro Bay SP provides excellent bird watching opportunities. An extensive trail system affords numerous options for hiking, walking, and mountain biking. Camping, boating, horseback riding, fishing, cycling, golfing, and observing

marine life are additional recreational activities possible at this park.

Camping has been a popular family activity at Morro Bay SP since the 1930s. The park has 135 campsites, each with a table, stove, and food locker. Sites can accommodate recreational vehicles up to 31' long. Water and hook-ups are located in 20 sites, and a sanitation station is provided. Rest rooms with hot showers and laundry tubs are also located in the campground. There are also two group camps and a day-use area with picnic tables.

## 2.2 Existing Interpretation

### 2.2.1 Non-Personal Interpretive Services

Morro Bay SP offers numerous opportunities for self-directed, non-personal interpretation.

#### *Museum of Natural History*

The Museum of Natural History is the primary visitor facility at Morro Bay SP. In the 1950s, DPR developed plans to open regional museums throughout the state. The Morro Bay SP Museum of Natural History was part of this initiative. It was the only natural history museum built and remains the only one in the California State Park System. Like many museums, it was designed serve as both exhibit space and a research center. Dedicated in 1962, the building reflects the architecture of the time and may be eligible for the National Register of Historic Places. As of 2014, the museum contains 26 permanent exhibits, plus seasonal and rotating exhibits. Like most natural history museums, it interprets many topics including the estuary, plants, wildlife, Native American cultures, human impacts on the area, and more. Renovations were completed in 2010 to make the museum compliant with the Americans with Disabilities Act (ADA).

Original exhibits included dioramas painted by Ray Strong, one of the premier California landscape painters. The exhibits were removed when the museum was renovated in 2002, and are stored at the State Museum Resource Center, in Sacramento.

A native plant demonstration garden sits at the front of the museum. Plants are identified by a stone marker that includes the common name, scientific name, and Chumash and/or Salinan name (if known). Markers also list some of the plants' traditional uses.

A mural depicting local marine mammals is painted on the outside of the lower level.

### *Panels and Publications*

Outdoor panels are found throughout the park including at Morro Rock, near the Heron Rookery Natural Preserve, at the Natural History Museum, the campground, and trailheads. Panels have been designed throughout the years resulting in many styles (figures 8-10).

Publications include a "Nature Notes" magazine and numerous brochures published by the Central Coast State Parks Association (CCSPA), the non-profit state park association partner. Shorter pieces are produced for specific purposes.

### *Online*

The park's online interpretive presence consists of the official DPR web page, a SLO Coast District site, and the CCSPA site, all of which provide basic information about the park. As of this writing, CCSPA maintains a Facebook page which includes up-to-date information on the museum and park. The park also produces the "Bear's Den," an online publication for docents.



Figure 8. Heron Rookery Panels

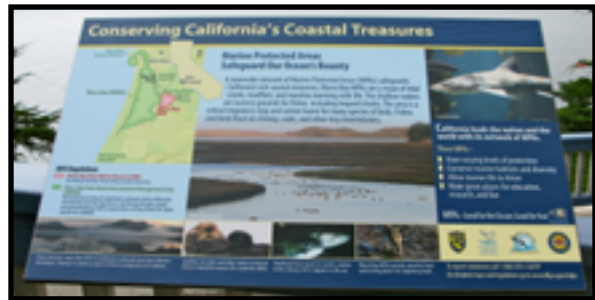


Figure 9. Museum Wayside Panel



Figure 10. Campground entrance low-profile panel

*Trails*

There are several trails in the park. These range from short hikes to longer trails among the volcanic plugs east of the Morro Bay salt marsh. Several have kiosks at trailheads that provide information on native plants, wildlife, and other topics.

*Other Facilities*

Morro Bay SP has a campfire center located near the picnic area and campground. It has bench seats, a campfire ring, a podium with electrical outlets, and a screen for showing visual programs. The campfire center was renovated in 2010 to make it ADA compliant.

Interpretive facilities at Morro Bay SP are seldom rented out for non-interpretive uses such as weddings or meetings. This occurs more often at Montaña de Oro State Park.

**2.2.2 Personal Interpretive Services**

*Public Tours*

Docents and park staff offer numerous programs for day-use visitors, campers, and students. The Adventures with Nature program (AWN) is a series of 20-30 guided walks and talks held each month. These cover a range of topics including plants, birds, wildlife, estuarine and marine ecology, astronomy, Native American prehistory and archaeology, and pioneer history.

*School Programs*

Docents offer educational programs for elementary students about birds, marine mammals, Native Americans, and the estuary. Each of these is a two-hour program that includes both indoor and outdoor portions. The park can accommodate up to 60 students at a time. Students are divided into four groups of 15, each of which is guided by a docent.

School programs are also offered for high school and college students. All school programs are offered on-site. Following California's adoption of the Common Core State Standards for English Language Arts and Math, and the Next Generation Science Standards, school program curricula are not aligned to state standards (*see 2.2.4: Educational Services, for more details*).

*Campfire Programs*

Campfire programs are offered sporadically throughout the summer. During the summer, each ranger presents two programs per month, either a campfire or daytime program. On occasion, docents conduct campfire programs.

*Junior Ranger Program*

The Junior Ranger Program is offered to children 7-12 years old, Friday-Monday from mid-June to Labor Day. This program follows the statewide Junior Ranger format and covers a variety of natural and cultural history topics. Participants earn logbooks, badges, posters, certificates, and/or patches. They are also encouraged to take part in the statewide Litter Getter Program. Self-guided Junior Ranger Adventure Guides are available for those who cannot take part in guided activities.

*Living History*

There are currently no living history programs offered at Morro Bay SP.

*Roving Interpretation*

Roving interpretation is sometimes offered at the museum on busy days, especially during summer. Otherwise, the museum's information desk docent is available to answer questions, engage in conversation, show videos, and generally enhance the museum visitor's experience.

The Sea Otter Experience trailer is located at Morro Rock on weekends from mid-

June through Labor Day. Docents share information about sea otters, show specimens and pelts, provide spotting scopes for close-up views of these animals, and sell sea otter-related items to raise funds for CCSPA.

### *Special Events*

Regularly-occurring interpretive special events include the Morro Bay Winter Bird Festival, Summer Solstice, Skeleton Sunday (a full-day of looking closely at skulls and bones), Kids' Camp (a collaboration between the City of Morro Bay, MBNEP, and DPR), Children's Day in the Plaza (a San Luis Obispo public educational event), and various activities held between Christmas and New Year and during spring break. Docents and park staff, with financial and other support from CCSPA, organize these events.

### **2.2.3 Collections**

Morro Bay SP has one of the most extensive collections within the DPR system.<sup>27</sup> Its library contains approximately 3,000 volumes on natural and cultural history, and it has thousands of preserved natural and cultural history specimens. Collections predate the opening of the museum, and new specimens are continually being added. Objects come from the local area and from as far away as Asia.

The collection includes:

- Pressed plants and marine algae
- Lichens
- Marine invertebrates
- Insects
- Fish
- Amphibians and reptiles
- Bird mounts, nests, and eggs
- Mammal mounts and pelts

- Rocks, minerals and fossils
- Native American artifacts

A large, professionally-built collections area is managed by the park interpreter and volunteer curators. The museum's curatorial program supports Montaña de Oro SP, Oceano Dunes SVRA, and the Coastal Discovery Center in Hearst San Simeon SP. The park has both museum and interpretive collections.<sup>28</sup>

The majority of objects in the museum collection, also known as the "reserve collection", are not intended to be handled by visitors. Docents and staff may use objects in exhibits or programs; however, items must remain in protective cases. Researchers, educators and other members of the community may access portions of the collection with permission of the museum manager. Objects in the Native American collection are off-limits to the public and may only be used by park staff or docents with the prior approval of the district archaeologist in consultation with the pertinent tribe(s).

The interpretive collection is available to interested parties with the approval of the museum manager or curator. Rangers and docents regularly use objects from this collection for interpretative and educational programs. It is housed separately from the museum collection and includes modern replicas or models, which have been labeled as such.

Volunteers completed a thorough inventory of the collection between 2011 and 2013. During this inventory they noted that some of the collections lacked cohesion and did not fit with the museum's interpretive themes.

A Scope of Collection Statement (*Appendix F*) was developed concurrently with the IMP. It identifies what new objects should be acquired and what objects should be deaccessioned.

### 2.2.4 Educational Services

Morro Bay SP hosts students from throughout SLO county, as well as children from Santa Maria, Bakersfield, Los Angeles, and elsewhere in the Central Valley and southern California. In 2010, the Museum hosted 116 school groups with 4,426 attendees. School programs are primarily designed for 2nd through 5th grades; however, the programs can be modified for pre-K, kindergarten, middle school, and high school. Docents lead the school programs.

Teachers select a program from the following topics:

- Estuary
- Marine mammals
- Birds
- Native Californians

A brief synopsis of each program, and a calendar showing availability, are on on the CCNHA website.<sup>29</sup>

### 2.2.5 Interpretive Readiness

#### *Park Employees*

Park employees of many different classifications provide interpretation at Morro Bay SP. Park Rangers provide a minimum of two interpretive programs per month during the summer. Occasionally other staff, such as maintenance, environmental scientists, or other classifications, lead a Junior Ranger or other interpretive program.

The park has one full-time State Park Interpreter II whose primary role is to manage the Natural History Museum. Morro Bay SP also has one seasonal Park Interpretive Specialist. This individual conducts Junior Ranger programs and other youth programs as needed. Training and evaluation are provided by the State Park Interpreter II. Training is also

provided through ongoing courses at the California State Parks' Mott Training Center. The Interpreter II and the Sector Superintendent conduct annual program evaluations.

#### *Volunteers*

Morro Bay SP has an active docent pool of approximately 100 people, with another 100 docents who volunteer at nearby parks and occasionally at Morro Bay SP. These volunteers provide a significant amount of Morro Bay SP's interpretive and educational programming. They lead guided walks, interpret sea otters, and teach school programs.

All docents complete a four-day content and interpretation skills training, led by the Interpreter II. Walk leaders attend an additional half-day interpretive walk training. There are a variety of additional training opportunities offered throughout the year. Docents and staff also have access to the extensive reference library at the museum.

#### *Financial Support*

The park's co-operating association, CCSPA, provides funding for various park interpretive and educational programs. This funding is sufficient for existing interpretive programs.

#### *Available Space*

Due in part to the extensive reference library and collections, space in the museum is at a premium. Concurrent with the IMP, park staff and volunteers reorganized and streamlined the park's collections by using proper taxonomic classification and developing a Scope of Collection Statement. The Scope of Collection Statement identified objects that could be deaccessioned or sent to the California Statewide Museum Collections Center (SMCC) in Sacramento to provide more space for new or existing collections.

Limited meeting space is available in the Museum Manager's office, a conference room at the sector office, at several outdoor locations, and in various rooms at the museum, including a 58-seat auditorium and a classroom. Internet access is readily available at the museum and elsewhere in Morro Bay SP; however, it does not currently have sufficient bandwidth to support large multi-media applications.

### 2.2.6 Partnerships

Morro Bay SP partners with numerous private and public groups in the local area. One of its most important partners is the Central Coast State Parks Association (CCSPA). Formerly known as the Central Coast Natural History Association, CCSPA's mission is:

[I]n partnership with California State Parks, [to] promote public awareness and stewardship of our natural resources and cultural heritage, now, and for future generations. As a non-profit organization we support interpretation, education and volunteer efforts in local state parks.<sup>30</sup>

CCSPA operates the sales area at the museum, a seasonal trailer at Morro Rock, sells memberships and firewood in the campground, and holds special event fundraisers; the proceeds from which help support interpretation, education, and park operations. Programs supported by CCSPA include permanent and rotating exhibits at the museum, docent training, school group programs, curatorial activities, Junior Rangers, guided walks, a lecture series, and special events.

CCSPA is also the cooperating association for Montaña de Oro SP, Estero Bluffs SP, Harmony Headlands SP, Morro Strand State Beach (SB), Pismo SB, Los Osos Oaks State Reserve (SR), and Oceano Dunes State Vehicular Recreation Area (SVRA).

The park has relationships with several other non-profit organizations and government agencies. It has strong working relationships with Morro Coast Audubon Society (MCAS), the Morro Bay National Estuary Program (MBNEP), and the city of Morro Bay. Notable cooperative programs include the Morro Bay Winter Bird Festival (co-sponsored by the DPR, CCSPA, MCAS and the City of Morro Bay) and a summer kids' camp (co-sponsored by DPR, MBNEP, and the city of Morro Bay).

The park also has informal relationships with Camp KEEP and Rancho El Chorro Outdoor School, environmental education programs that work with school-age children. Speakers from the Marine Mammal Center, Pacific Wildlife Care, Wolf Hybrid Adoption and Rescue, Cal Poly SLO, Cuesta College, and other institutions and organizations often give presentations at the park. The park has worked with both the Salinan and the Northern Chumash tribes on educational exhibits and special events. Docents have made reciprocal training visits to the Natural History Museum of Santa Maria and the Santa Barbara Museum of Natural History.

The IMP process identified opportunities for additional partnerships (*see Chapter Six, Interpretation Action Plan*).

### 2.2.7 Interpretive Concessions

A concession is a private business operating under contract in a state park unit. Concessions provide products, services and programs not normally provided by State employees. Some park concessions also assist the Department in its interpretive efforts. (Refer to DOM 1900, Concessions and Reservations, as well as the Concessions, Reservations and Fees Division of California State Parks, for more information and specific policies concerning state park concessions).



Morro Bay SP does not have any specific interpretive concessions. Central Coast Outdoors (CCO), an outdoor adventure company, occasionally partners with the kayak concessionaire at the park marina to offer guided kayak trips.

### 2.2.8 Marketing

Morro Bay SP markets its interpretive facilities and programs in many ways. Scheduled talks and walks are posted electronically on the CCSPA website and its Facebook page, and in print on bulletin boards throughout the sector. Announcements are also made through local media including the CCSPA e-newsletter, radio programs, newspaper, and television. Near the beginning of each school year, school teachers receive a letter about field trip programs.

CCSPA provides the majority of marketing for the park. It pays for advertisements in the SLO County Visitor's Guide and the Morro Bay Visitor's Map. In 2012, CCSPA produced a video that airs in hotel rooms throughout the county. Its quarterly magazine, "Nature Notes", also highlights activities at the museum and park.

CCSPA promotes the museum and park through its memberships in numerous local Chambers of Commerce including Morro Bay, Los Osos, San Luis Obispo, Pismo Beach, and Arroyo Grande. CCSPA is in the process of developing a larger social media presence, for example, on Facebook. They also manage a website, produce an e-newsletter, and have begun to use QR codes. CCSPA has also produced a volunteer and docent recruitment video. The association is investigating developing an application (app) with the goal of attracting younger visitors and providing more self-guided interpretation.

### 2.2.9 Research Resources

The museum library contains numerous

books on natural and cultural history as well as copies of academic studies. Park environmental science and archaeological staff maintain inventories of natural and cultural resources.

Other research resources include:

- Local historical organizations including the History Center of SLO County, San Luis Obispo Genealogical Society, and Morro Bay Historical Society.
- The Morro Bay National Estuary Program, which is funded by the US EPA and conducts monitoring and research on the health of the estuary
- An internet connection that allows access to various websites and other sources for background research.
- DPR's electronic database, The Museum System (TMS), lists about 3,000 objects in the Natural History Museum's collection.
- DPR's Unit Data File (UDF) an online collection of information about a unit.

## 2.3 Local and Regional Influences

### 2.3.1 Community Involvement

The local community appears engaged with and supportive of Morro Bay SP. Participants at the stakeholder meetings clearly conveyed that Morro Bay SP is not just an important part of the community, but also a point of pride. Many local people are members of CCSPA and/or serve as docents at the park.

Interpretive programming at Morro Bay SP relies heavily on community involvement. Docents facilitate the majority of programs. The museum is also largely staffed by volunteers. The docent committee coordinates the guided walk

program, schedules and conducts school field trips, and develops rotating and seasonal exhibits at the museum.

The educational community is an important constituency for Morro Bay SP. In 2010, the museum hosted 116 school groups with 4,426 attendees. They come from schools throughout SLO County and as far away as Bakersfield and Los Angeles. Programs serve all ages, from preschool and kindergarten to middle and high schools. In recent years, a few retired college-level biology professors have become docents, which allows the park to offer programs to college-age students as well. CCSPA, through private donations and a California Coastal Commission grant, provides bus transportation for underserved schools.

### **2.3.2 Other Interpretation Providers**

#### *California State Parks*

In under an hour's drive, visitors can find over a half dozen other state parks. These include: Hearst San Simeon State Historical Monument (more commonly referred to as Hearst Castle®), Hearst San Simeon SP, Estero Bluffs SP, Harmony Headlands SP, Montaña de Oro SP, Pismo SB, and Oceano Dunes SVRA. Many of these sites provide guided walks, talks, Junior Ranger Programs, evening interpretive programs, and special events.

The famously opulent Hearst Castle®, a Mediterranean-style estate designed by Julia Morgan and once owned by William Randolph Hearst, offers daily guided tours and allows visitors to take self-guided tours around the grounds.

Montaña de Oro State Park, which is visible from Morro Bay SP, encompasses 8,000 acres, including miles of pristine coastline and the Spooner Ranch House, which interprets the cultural history of the Pecho Coast.

The Oceano Dunes SVRA is expected to open a new visitor center by 2017. Exhibits at the center will focus on dune geology and ecology, the Dunites, recreation, and Northern Chumash culture as it pertains to the Oceano Dunes region. The SVRA is also home to the world famous Pismo Monarch Butterfly grove, one of the most significant over-wintering sites for the western monarch butterfly.

#### *Non-DPR Providers*

Many other local private and public sites offer some form of interpretation. Lopez and Santa Margarita Lake Recreation, managed by SLO County Parks, offer interpretive programs. The El Chorro Regional Park, also operated by SLO County, has a small visitor center and botanical garden.<sup>31</sup>

The San Luis Obispo History Center offers exhibits on county history. The SLO Children's Museum is primarily a play- and discovery-oriented museum, which offers periodic exhibits and programs on natural history. The Natural History Museum of Santa Maria is located in a refurbished house in that city. It is operated entirely by volunteers, and offers displays on wildlife and local plant communities. It also periodically offers programs featuring live birds, rescued wildlife, or other live creatures.

The Morro Bay Aquarium, also known as the Morro Bay Marine Rehabilitation Center, opened in 1952 and is privately owned. The aquarium is not accredited by the Association of Zoos and Aquariums (AZA). It has a gift shop, several sea lions, and fourteen tanks containing sea life such as fish, sharks, octopus, eels, abalone, sea anemones and more. In addition, the research department at California Polytechnic University in San Luis Obispo boards their horseshoe crabs here. Children and adults are able to purchase food, which they can feed to the sea lions.

The Morro Bay National Estuary Program has a small visitor/discovery center focusing on estuarine, intertidal, and stream life. Located in downtown Morro Bay, it is free to the public and features exhibits on estuary ecology and protection. The Coastal Discovery Center in Hearst San Simeon SP is jointly operated by DPR and the Monterey Bay National Marine Sanctuary. It features exhibits on intertidal organisms, anadromous fish, marine research, marine mammals, and more. Docents offer regular programs on local history, and on marine wildlife as viewed on nearby beaches and the San Simeon Pier.

The Central Coast Aquarium in Avila Beach is a small family- friendly facility that educates visitors about tide pool and marine life. It features “touch tanks” with live marine organisms. Visitors, including young children, are encouraged to touch organisms carefully. Tours are offered for older youth and families.

Just inland from Oceano Dunes SVRA and Pismo SB, the Dana Adobe Nipomo Amigos recently received funds to construct "Stories of the Rancho", which will include interactive exhibits featuring the cultural and natural resources of the Nipomo Creek watershed, including a Chumash village, native gardens, indoor and outdoor exhibits, interpretive trails, and signage.<sup>32</sup>

Friends of the Elephant Seal, which recently became a DPR cooperating association, has a small store front and office in San Simeon. The organization trains volunteer docents to interpret a large, seasonal elephant seal colony north of San Simeon and educate visitors about the natural history of these animals.

## 2.4 Visitation and Visitor Use

### 2.4.1 Visitor Synopsis

The following visitor synopsis is based on the results of intercept surveys administered at multiple locations in Morro Bay SP between November 18-December 30, 2011 and August 29-September 1, 2012, and a direct mail survey sent to teachers on January 5, 2012 and returned by February 15, 2012. Results are recorded by percentages, fractions, or on a Likert scale of 1-4 (1 being low, 4 being high). Surveys were designed by J.D. Franz Research, Inc., in collaboration with DPR staff.

#### *Day-Use and Campground Visitor Surveys*

##### *Methodology*

Surveys were administered at six locations in the park: the Natural History museum, the MBSP campground, Morro Rock, Black Hill, the Quarry Trail trailhead, marina, and the golf course. Due to low intercept rates at the latter four sites, they were abandoned after several days and efforts were focused at the first three locations.

The survey was administered between November 18 and December 30, 2011. A follow-up survey was administered August 29-September 1, 2012. In total, 555 visitors completed the survey, 373 in the fall/winter and 182 in the summer. Data was not analyzed for statistically significant differences except between the winter and summer scores. However, it is considered sufficiently robust to provide a general understanding of park visitors, their interests, and thereby guide the recommendations for interpretive programming.

In general, the differences between the fall/winter and summer data are minimal and not statistically significant. Most are the result of what could be termed a

higher level of interest in learning during the summer. There were, however, two questions in which meaningful and statistically different findings between the two groups emerged: prioritization of the various topics and interest in how visitors learn about said topics. These differences will be discussed further in the analysis section. The percentages and scores that follow represent the mean score of all survey participants.

**Results**

Most of those who visit Morro Bay State park are repeat visitors, although about a third are on their first visit. About one-third come from San Luis Obispo County, a majority of others come from elsewhere in California (Los Angeles, Orange, Ventura, San Diego, and Santa Barbara were among the top 10 other counties listed). Slightly more than one in ten visitors comes from out of state.

Visitor parties are most likely to contain two people, and these people tend to be members of the same family. About a third of parties contain children, whose ages tend to be at least six. Adult ages skew toward 45 and older. The survey found that most visitors speak English at home (table 7).

**Table 7.** Visitor Demographics

Demographics	Percentage
Visitors who live outside SLO County	72%
Visitors who have been before	66%
Visitors 45 years or older	63%
Visiting with family	74%
Traveling without children	66%
Speak English at home	96%

Based on the distribution of completed surveys, as well as visitor responses, Morro Rock is the most popular

destination in the park and Morro Bay SP is one of the most popular destinations in Morro Bay. Fifty percent of visitors were surveyed at Morro Rock and nearly 3/4 of all visitors surveyed indicated that they planned to visit Morro Rock on the day of survey. After Morro Rock, visitors were most likely to visit the “walking and hiking trails” and the “museum and visitor center” (table 8).<sup>33 34</sup>

**Table 8.** Park Destinations

Park Destinations	Mean Score
Morro Rock	74%
Walking and hiking trails	50%
Museum/Visitor Center	38%
Campground	32%
Heron Rookery	21%
Black Hill Overlook	17%
Golf Course	8%

When asked about their interest in learning about eight topics relevant to Morro Bay SP, visitor interest broke into three distinct groups (table 9).<sup>35</sup>

**Table 9.** Topics of Interest

Topic		Mean Score
Tier 1 > 3.25	Marine life	3.29
	Morro Rock	3.28
	Wildlife	3.28
Tier 2 3.00-3.25	Ocean ecology	3.15
	Local Native American culture	3.12
	Estuary ecology	3.05
Tier 3 < 3.0	Climate change	2.81
	History of the Civilian Conservation Corps	2.78

Visitors were asked how they would like to learn about the various topics. Their responses indicated they are most interested in learning about things on

their own, through panels, museum exhibits, and brochures. Their next highest interest group involves interacting with park personnel: talks by rangers, demonstrations, guided walks and hands-on activities.<sup>36 37</sup> Activities involving technology generally scored low: the park website was the only technology-based media to receive a score higher than 3.0. Films and videos, audio tours, and smart phone apps all scored lower than 3.0, as did a park newsletter (*table 10*).

**Table 10.** Preferred Interpretive Services

Preferred Interpretive Services		Mean Score
Tier 1 > 3.3	Panels	3.65
	Museum exhibits	3.47
	Brochures	3.41
	Talks	3.36
Tier 2 3.0-3.3	Demonstrations	3.26
	Website	3.26
	Guided walks	3.24
	Hands-on activities	3.13
Tier 3 < 3.0	Films and videos	2.92
	Newsletter	2.92
	Audio tours	2.67
	Smart phone apps	2.56

When provided with 11 options and asked to select their top two choices of things that the park could do to improve its interpretive and educational efforts, the visitors reiterated their interest in self-directed interpretation and interacting with staff (*table 11*).

**Table 11.** Most Likely to Improve Park Interpretive Experience

Greatest Benefit to Park Interpretation		Percentage
Tier 1 > 20%	Guided walks of less than one hour	35%
	Kayak tours	24%
	More panels	24%
Tier 2 15-20%	Self-guided trail brochures	20%
	Guided hikes of 1-3 hours	16%
	Campfire programs	14%
Tier 3 < 15%	Summer children's programs	13%
	Updated museum exhibits	12%
	Online information	11%
	Smart phone apps	10%
	After school children's programs	9%

### Teacher Surveys

#### Methodology

Surveys were sent to teachers in the San Luis Obispo Unified School District (SLOUSD) and teachers outside the district who had brought a class to the park within the preceding three years. The SLOUSD sample included all K-6 teachers, as well as all middle and high school science and social science teachers. Participants were identified from the district's website.

A questionnaire and cover letter were sent to a total of 271 teachers on January 3, 2012. This was followed by a postcard reminder to the entire sample on January 26. As of the cutoff date of February 14, 58 teachers responded, a return rate of 21%. Of the teachers that responded to the survey, there was an even split between those who had previously participated in field trips to Morro Bay SP and those who had not.

As with the intercept survey, the data was not analyzed to determine if there was a statistically significant difference in the scores. Furthermore, due to the small sample size, the results should not be interpreted as fully representative of the educational community. However, the results provide sufficient guidance to move ahead with developing school programs, ideally in consultation with a team of teachers.

**Results**

Most teachers who responded have been teaching for six years or more, and teach grades K-6 in the public school system. They consider their students to be somewhat to very knowledgeable about and comfortable in the natural world. A substantial portion of the teachers have students who would benefit from Spanish language translations (*table 12*).

**Table 12.** Teacher Demographics

Demographics	Percentage
Previous field trip to Morro Bay SP	50%
Very or somewhat likely to visit in next three years	55%
Teach public school	91%
Teach K-6	74%
Offer environmental stewardship activities in the classroom	48%
Consider students somewhat to very knowledgeable about the natural world	84%
Consider students somewhat to very comfortable in the natural world	89%
Have students who would benefit from Spanish language oral instruction	50%

Demographics	Percentage
Have students who would benefit from Spanish language written instruction	40%

When asked without prompting, teachers indicated that Morro Bay could best help them teach about natural history topics (*table 13*).

**Table 13.** Topics of Interest (Teacher Provided)

Topic	Percentage
Estuary study	24%
Animal habitat	21%
Rocks/geology	21%
Plants	17%
Insects	10%
Birding	10%
Ecology	10%
Tide pooling	10%
Indigenous cultures/Chumash	10%

Teachers expressed their desire for trained docents to continue to run the field trips. There was minimal interest in having the parents or teachers be in charge of the field trips.

When presented with a pre-selected list of topics that the park could help teach, educators prioritized wildlife, geology and ecology as most important, with climate change and commercial fishing the least (*table 14*).

**Table 14.** Topics of Interest (Park Provided)

	Topic	Mean Score
Tier 1 > 3.4	Wildlife	3.58
	Geology	3.49
	Marine ecology	3.47
	Estuary ecology	3.43
Tier 2 3.0-3.4	Native American culture and history	3.35
	Endangered species	3.29
	Watershed science	3.23
Tier 3 < 3.0	Climate change	2.96
	Commercial fishing	2.62

Teachers indicated a high level of interest in receiving materials prior to coming to the park for a field trip including (table 15):

**Table 15.** Pre-visit Material Types

Material	Mean Score
Packet with pre-visit lessons and activities	3.72
Background information on the park	3.71
Park map	3.68
Suggestions of items to bring	3.65
Rules and field trip etiquette	3.52
Park brochure	3.17
Park newsletter	2.64

In terms of the previsit materials, teachers scored a variety of characteristics with four being most useful and one being not useful (table 16).

**Table 16.** Pre-visit Lesson Desired Characteristics

	Characteristic	Mean Score
Tier 1 > 3.75	Student-centered	3.91
	Encourage critical thinking	3.88
	Encourage creative thinking	3.84
	Include experiential learning	3.81
Tier 2 3.0-3.75	Address multiple intelligences	3.71
	Address state standards	3.59
	Teach the scientific method	3.39
Tier 3 <3.0	Contain evaluation measures	2.90

When asked what other support the park could provide in addition to field trips, teachers were most interested in resources that they could use independently and classroom presentations (table 17).

**Table 17.** Preferred Educational Programming

	Educational Resources (non-field trip)	Mean Score
Tier 1 > 3.0	Classroom presentation	3.37
	Resources to use independently	3.06
Tier 2 2.75-3.0	Service learning for students	2.91
	Teacher training	2.84
	Citizen-science	2.77

Tier 3 < 2.75	Resources for videoconferences and presentations	2.69
	Service learning for teachers	2.65
	PORTS	2.42

One final finding is that there is no correlation between teachers who offer environmental stewardship lessons or activities in the classroom and those who visit the park.

### 2.4.2 Visitor Access and Circulation

Morro Bay State Park consists of three, non-contiguous parcels (*see figure 2, p. 2*). Access is at times unclear and circulation requires driving through the city of Morro Bay.

Visitors can access the main part or "core" of Morro Bay SP from two points. The first and most heavily used, brings visitors from Highway 1 through the town of Morro Bay. Visitors enter the park by driving through an entrance point marked by two stone pillars constructed by the CCC (*figure 11*).

The second is from the south, by way of Los Osos.

Campers and day use visitors mostly come in personal vehicles, such as cars, trucks, motorcycles, or recreational vehicles (RVs). The city of Morro Bay provides public trolley to the park, which operates on weekends and holidays from Memorial Day through the first weekend in October.

Tour groups and school groups arrive mainly on buses. Some school groups come on charter buses, and both types of groups may arrive in vehicle caravans. A small number of campers come by bicycle.

Within the park, sites vary in the quality of their signage. Campers enter and exit through a single location marked by the campground entrance kiosk. Signs installed around 2006 make circulation within the campground fairly easy. The museum and its parking lot are also well signed; however, various trailheads and other day-use areas, notably Black Hill, are not as well marked.



**Figure 11.** CCC rock pillars

Beyond the park core lie Morro Rock, Cerro Cabrillo, the salt marsh, and the Powell Property. Morro Rock is the most visited part of the park. Many visitors come specifically to Morro Bay to see the rock. However, due to the lack of clear signage, it is not obvious that Morro Rock is part of the park.

Finding Morro Rock is fairly easy. It can be seen from many parts of town and locals can help direct visitors there. A large parking space accommodates visitors, but the interpretive panels are tucked out of site of the main parking area making it



little more than a photo-op stop.

Cerro Cabrillo, the highest point in the park and the location of many of the park's best hiking trails, is located along the road between Los Osos and the park core. Like Morro Rock, it is not well signed, and as the speed limit on the road is 55 mph, it is quite easy to pass by even if you are looking for it.

The salt marshes are not a prime destination. Access to them is not clear and there is not a strong desire to change this.

The Powell Property is one of the most recent acquisitions. The park is still working to determine how it will be used. At the time, signage to and at the Powell Property are limited, deliberately so.

### 2.4.3 Visitor Expectations and Experience

Based on the visitor surveys, park staff feedback, and social media and internet based review sites such as Yelp and TripAdvisor, visitors are by and large happy with their visit to Morro Bay State Park.

As of the end of the summer, 2015 the campground had an aggregate gets 3.5 stars, the Museum of Natural History, 4 stars, and Morro Rock, 4.5 stars.

On trip advisor, a visit to Morro Rock is the most popular activity. The museum of Natural History and the park itself are ranked fourth and fifth respectively, and the Heron Rookery rounds out the top ten.

When asked during the survey what the park could do to improve their visit, visitor requests focused on providing more opportunities to learn about and connect with the site (*table 18*).

**Table 18.** What the park can do to improve the visit

Action	Percentage
More Interpretive Signs	13%
Nothing/It's Fine	5%
More staff	5%
More restrooms	4%
More brochures	4%

## Endnotes

1. <http://salinatribe.com/about.htm> (accessed November 23, 2013).
2. Fred Collins, personal communication, January 4, 2014.
3. The Franciscan Assemblage is the geologic term for an accreted terrane of heterogeneous rocks, which is a major component of the Pacific Coast ranges. The terrane consists of igneous, metamorphic and sedimentary rocks, which have been faulted and mixed in a seemingly chaotic manner. These rocks were pushed upward and into the previous coastline as a berm as the Farallon Plate moved into a coastal subduction zone. [http://en.wikipedia.org/wiki/Franciscan\\_Assemblage](http://en.wikipedia.org/wiki/Franciscan_Assemblage) (accessed June 20, 2012).
4. Estuary Tidings, 2010, p. 4. Author: Morro Bay National Estuary Preserve
5. <http://www.mbnep.org/Library/ccmp.html> (accessed May 23, 2014).
6. Referred to as "Marshes and Swamps" in the 1988 General Plan.
7. <http://www.elfin-forest.org/about/Ecology.htm> (accessed April 6, 2016).
8. [http://www.mbnep.org/Library/Files/ATLAS\\_FINAL2\\_low.pdf](http://www.mbnep.org/Library/Files/ATLAS_FINAL2_low.pdf) (accessed May 23, 2014).
9. [http://www.elkhornslough.org/sloughlife/maritime\\_chaparral.htm](http://www.elkhornslough.org/sloughlife/maritime_chaparral.htm) (accessed May 23, 2014).
10. [http://www.mbnep.org/Library/Files/ATLAS\\_FINAL2\\_low.pdf](http://www.mbnep.org/Library/Files/ATLAS_FINAL2_low.pdf) (accessed May 23, 2014).
11. Referred to as "Lichen Fields" in the 1988 General Plan.
12. <http://www.mbnep.org/> (accessed April 6, 2016).
13. Morro Bay SP General Plan
14. Vince Cicero, personal communication, 4/18/2013.
15. DPR Operations Manual Interpretation & Education, Interpreting Native Californian Indians Policy, 0900.3.6.1, 5.
16. <http://www.mbnep.org/> (accessed April 6, 2016).
17. Morro Bay SP General Plan
18. Elise Wheeler, personal communication, 6/19/2013.
19. <http://centralcoast.com/morro-bay/> (accessed April 6, 2016).
20. [http://en.wikipedia.org/wiki/List\\_of\\_Ranchos\\_of\\_California](http://en.wikipedia.org/wiki/List_of_Ranchos_of_California) (accessed January 7, 2013).
21. <http://centralcoast.com/morro-bay/> (accessed April 6, 2016).
22. Morro Bay SP General Plan
23. <http://centralcoast.com/morro-bay/> (accessed April 6, 2016).
24. Morro Bay SP General Plan
25. <http://militarymuseum.org/ATBMorroBay.html> (accessed October 15, 2013).
26. <http://www.oldmorrowbay.com/nagano.html> (accessed October 15, 2013).
27. Scope of Collection Statement, 2012.
28. Museum collections are objects maintained for use in exhibits, research, and publications such as archaeology, paleontology, natural history specimens, historic firearms, etc. Interpretive collections are objects from park collections, hands-on replicas, etc. that are used for interpretive purposes.
29. [http://www.slostateparks.com/morro\\_bay/mb\\_school\\_tours.asp](http://www.slostateparks.com/morro_bay/mb_school_tours.asp) (accessed August 18, 2014).
30. <http://ccspa.info/membership/join.html> (accessed April 6, 2016).
31. <http://www.slocountyparks.com/> (accessed April 6, 2016).
32. <http://www.parks.ca.gov/pages/1008/files/nef%20awards%20list%20description%202011.pdf> (accessed December 24, 2013).
33. The second most common site location to visit was "the marina". We suspect that visitors were indicating the marina in downtown Morro Bay, not the one at the park, as it is not a heavily-visited destination.
34. By including visitor center with the museum, we may have increased the response rates for this item if people thought we meant the visitor information center downtown. However, given that the Natural History

Museum in the park was the site of the second largest group of surveys, we feel it is safe to assume that it is a primary destination for visitors.

35. Topics were provided in the survey.
36. For the purpose of this survey, we used the term “ranger” as a generic park-employee term, not specially as the California State Parks classification.
37. Visitors were specifically told by the interviewer that the survey did not count as a staff interaction.



## CHAPTER 3: ANALYSIS

*Chapter three analyses the data contained in Chapter two, Existing Conditions. It identifies the park's strengths and where interpretation can be improved to enhance the visitor experience and protect resources. Detailed recommendations and guidance on implementation of said recommendations follow in Chapters five and six.*

### 3.1 Resources

Morro Bay State Park (SP) contains a wealth of natural resources, including one of the healthiest and easiest-to-explore estuaries in the state. It is home to numerous plants, animals and other living things. The geology within the park is representative of coastal California geology, with the unique addition of the morros. The rich natural resources overlap with visitors' interests, which lie mostly in learning about the natural history of the park and region.

Information about the natural resources is, for the most part, well documented and sufficiently robust for interpretation. However, one topic on which relatively little is known is climate change. As of the writing of this plan, little to no climate change modeling has been done for Morro Bay or even the Central California coast, particularly when compared to the San Francisco Bay estuary. However, climate change, both its historical role in creating the estuary and the impacts of the current changes underway, is a very relevant topic. As this is a rapidly changing field of science, park interpreters should take steps to keep abreast of new research. In order to have timely, accurate, and localized data, the park may wish to develop programs to observe and record changes, for example, in sea level or precipitation. This could be done through collaboration with research scientists or students at local universities, or through a citizen science program.

In addition to interpreting the threat posed by climate change, interpretation can help mitigate other threats to park resources. Where applicable, interpretive panels, programs, or other materials should address such topics as the introduction and spread of invasive species; resource degradation caused by volunteer trails, improper trash disposal, off-leash dogs, or other negligent or prohibited activities; and disturbance of birds and marine mammals when boating, hiking, or otherwise recreating. While interpretation won't make all of these problems disappear, raising visitor awareness about regulations, proper recreation etiquette, and encouraging environmentally responsible behaviors, can help alleviate them.

Although not as well-known as the natural resources, the park also has a rich cultural history. Morro Rock in particular is important in Chumash and Salinan culture – both historically and contemporarily. Other cultural stories that could be interpreted include: Spanish exploration, the transition from the mission period to the Mexican ranchos, development of the fishing and tourist industry, WWII coastal defense, development of the State Parks system in California, and the Civilian Conservation Corps.

Additional research is needed to document the park's cultural history. Much of what is known about the general area is "laden with Mission romanticism".<sup>1</sup> Recruiting researchers from local universities and developing partnerships with Salinan and Northern Chumash tribes could help bring more depth and accuracy to the cultural stories.

Outdoor recreation is an important aspect of visiting Moro Bay. Thanks to its mild climate, visitors can explore Morro Bay SP year round. Many of the outdoor recreation opportunities available at the park are not only compatible with, but enhanced by interpretation. Integrating

interpretation and recreation will help provide a richer experience and help reach visitors who may not participate in traditional interpretive activities (e.g. Junior Rangers, campfire programs, or a visit to the museum).

### 3.2 Existing Interpretation

Interpretive services at Morro Bay SP are well received by the public. Park strengths include the museum, interpretive programs, and its staff. The park also benefits from a strong and engaged cooperating association and dedicated docent corps. School programs also receive high marks from participating teachers. Accessibility of interpretive programming has recently been improved, as numerous physical obstacles were removed during the 2010 ADA renovations. There is, however, room for growth and improvement in the interpretive and educational programming.

#### *Museum*

The museum is very popular with visitors. However, exhibits are 12 years old and a number of them are beginning to show their age. Some that use technology fail on a regular basis. Not only do these require time and money to repair, but it does not look good when ‘out-of-order’ signs are posted. The museum could also benefit from a clear, unifying theme relevant to Morro Bay and exhibits that support it. At this time, some exhibits interpret Morro Bay, while others promote waste reduction and other “green” behaviors, but without a clear link to the local environment. Furthermore, during the 2002 installation, windows looking out onto the bay were covered, removing one of the building’s most attractive features and a key opportunity for place-based interpretation.

Funding provided by the state of California stipulates that exhibits should last for a minimum of 20 years. However, due

to the cost and complexity of designing new exhibits, they often linger on. Given the popularity of the museum, and challenges presented by non-functioning technology, the 20-year anniversary of their installation (2022) would be an appropriate time to replace the existing exhibits. Although this may sound far in the future, the cost of redoing the entire museum is not insubstantial and the time required to raise the funds, plan, design, and fabricate exhibits will require the park to begin taking steps soon.

#### *Morro Rock*

Morro Rock is among the most visited sites in the city of Morro Bay and Morro Bay SP. Due to its popularity, Morro Rock should be a priority for providing top-notch interpretation as well as promoting a positive image of DPR. At this time, Morro Rock is not clearly identified as a state park property. An old, small, state parks sign stands in front of the rock, but is not readily visible.

An interpretive panel is also currently located at Morro Rock; however, it is not visible from the main parking lot. Instead, it is tucked away around the southern side of the rock. Visitors must walk approximately 100 yards along a path populated with numerous regulatory and warning signs before they see the interpretive panel. (*figures 12–15*).

Only after making it past these numerous reminders not to approach the rock, can visitors learn some of the fascinating natural history of Morro Rock. The interpretive panel is fairly new and does a good job interpreting the geologic history of the morros. It sits in an upright panel shelter, the side of which faces the visitor as they approach. Attached to the side of the panel shelter is yet another sign reminding visitors to not enter or climb on Morro Rock (*figure 16*). New signs and interpretive panels that are more visible and more welcoming would be a positive

addition to this site.



Figure 12. Morro Rock regulatory signs



Figure 14. Morro Rock regulatory sign



Figure 15. Morro Rock regulatory sign



Figure 13. Morro Rock regulatory signs



**Figure 16.** Morro Rock panel shelter with regulatory signs

One of the challenges of providing interpretation at Morro Rock is the complexity of land ownership and regulatory authority. While the rock itself is a DPR property, it is surrounded by lands owned and managed by the city of Morro Bay. The California Department of Fish and Wildlife also has regulatory authority over the rock due to the presence of nesting birds. Lastly, the site is sacred to both the Chumash and Salinan tribes. While Morro Bay SP can and should take steps to conduct interpretation on the land that it owns and manages, for Morro Rock to truly achieve its interpretive potential will require a collaborative, multi-agency project.

Due to the number of people who visit Morro Rock, this is also a prime site to provide personal interpretation. During the summer months, docents set up a sea otter trailer near the rock. However, in the visitor survey, a large majority of the visitors indicated that they would also like to know more about the rock. Stationing

a roving interpreter or offering short, guided walks at the rock could help meet these visitor needs.

### *Panels and Publications*

Morro Bay SP has numerous interpretive panels and yet, visitors indicated a strong desire for more panels. The existing panels at the park vary greatly in both quality and style. Some, such as those in the campground, are fabricated of durable high-pressure laminate (HPL) and designed to meet recent DPR branding and ADA standards. However, even these do not have a uniform “look” as some were custom designed for Morro Bay SP (*figures 17-18*) and others came from the Statewide Panel Program (*figures 19-20*).



**Figure 17.** Custom Save the Rock panel



**Figure 18.** Custom Campground CCC panel





**Figure 19.** Statewide Campground CCC panel



**Figure 21.** Morro Rock interpretive panel



**Figure 20.** Statewide Campground panel

Others, such as the panel at Morro Rock, contain excellent interpretation, but do not meet current branding or ADA standards (*figure 21*).

Still others, such as those located at the Quarry Trail trailhead and the marina, are neither durable, nor do they meet standards for accessibility or interpretation (*figures 22*).



**Figure 22.** Cerro Cabrillo Trailhead panel

These issues could be ameliorated through the development of a design template for the interpretive panels at Morro Bay SP.

#### *Online Presence*

Information about the park can be found on the official DPR website, a Facebook page managed by the CCSPA, and a San Luis Obispo County State Parks website. At this time, the park has not made significant use of social media sites such as YouTube, Twitter, or Instagram. Based on the park's current demographics, becoming active on these sites is not a priority; however, if the park wishes to reach a younger demographic, making greater use of social media and incorporating new tools and applications as they appear, would be beneficial.

### *Trails*

Morro Bay SP offers numerous trails with varying degrees of difficulty and length. From the short, accessible Peninsula-Marina Trail to the steep Quarry Trail, there are hiking experiences available for nearly everyone.

Some of the trails, such as the accessible marina trail would be greatly enhanced by interpretative panels along them. The marina trail was, in fact, designed with pullouts for the placement of such panels. Other trails, such as the Quarry Trail on Cerro Cabrillo and the trail on Black Hill could benefit from interpretive panels along the trail; however, the steep ascent and hard, rocky, igneous rock of the morros make the placement of such panels a challenge. At a minimum, the popular trails should have a trailhead panel that provides a brief orientation to the trail and broad interpretation of what visitors can expect to see. In the event that placing panels along some of trails on the morros is not possible, portable trail guides – either paper, laminated, or accessible through smart phone or similar technology, could also be designed and provided.

### *Campfire Center*

As the campfire center was recently upgraded, there are no obvious improvements needed at this time. However, during the life of the plan it will likely need upgrades, due to wear and tear, to meet new codes, or to respond to changes in technology.

### *Frontline Interpretation*

Visitors who have attended interpretive programs rate them highly. However, the proportion of surveyed visitors who have attended such a program is low. It would benefit the park and the visitors to find ways to offer additional frontline interpretive programming. At this time, diverting existing resources or hiring

additional staff for interpretation is not possible, however, should the situation change in the future, increasing the level of frontline interpretation should be considered. Offering campfire programs, short hikes (less than one hour), interpretive kayak tours, and roving interpretation would all enhance the visitor experience.

### *Educational Services*

The educational services provided by Morro Bay SP receive high marks from the teachers who responded to the survey. There is, however, a great deal of room for growth in this area, teachers indicated a strong desire for in-class presentations, materials that they could use independently, and Spanish language materials and programming. One interesting discrepancy in the visitor survey was the low level of interest in PORTS. It may be that this is due to unfamiliarity with the program, as PORTS is well received by teachers who do participate in it, and it is a form of in-class presentation, for which teachers expressed a strong desire.

With one of the healthiest estuaries in the state, Morro Bay SP is a logical site for an estuarine PORTS program. Changes in technology are making PORTS cheaper and reducing need for studio space. While there is not sufficient staff at this time for a PORTS program, should new positions be authorized and funding become available, one should be considered and a program about estuaries developed.

### *Interpretive Readiness*

With a full-time interpreter for the museum, a seasonal park interpretive specialist, volunteers, and rangers who give several programs a year, Morro Bay SP has sufficient staff to maintain its current level of interpretive programming. However, full implementation of the proposals outlined in Chapter 6: Interpretation Action Plan, will require

additional interpretive staff. Optimum interpretive staffing for Morro Bay SP would include:

- Two museum managers—one full-time Interpreter II or III to manage daily operations, and one Interpreter I, at least 65% of the time, to oversee the museum on the two days that the full-time manager is not there to coordinate special events, and open the museum for occasional evening hours.
- A Park Interpretive Specialist or Interpreter I dedicated to campfire programs, roving interpretation, kayak tours, and the junior ranger program. This employee would work full-time at least May through September.
- A Park Interpretive Specialist or Interpreter I at a minimum of 50% time, 12 months a year, to oversee the PORTS program. During the summer months, this interpreter might also assist with kayak tours and junior ranger programs.

#### *Partnerships*

Morro Bay SP benefits greatly from its strong partnerships. Its partnership with CCSPA is the most critical. Strengthening existing partnerships with the Salinan and Northern Chumash tribes, MBNEP, and the city of Morro Bay should be explored.

The park should also explore developing partnerships with nearby institutions of higher learning. The California Polytechnic State University, San Luis Obispo (Cal Poly SLO), Cuesta Community College (both within 30 minutes of the park), the University of California Santa Barbara and California State University Monterey (~ 2 hours away) offer excellent opportunities for development of research projects either by professors or students in search of thesis or doctoral topics.

#### *Marketing*

At this time, the CCPCA's marketing meets the park's needs. However, additional use of social media and cooperation with local partners could help raise the park's profile and reach new markets in the future. Potential marketing partners include the Chamber of Commerce, City of Morro Bay, and the MBNEP visitor center. A specific marketing plan could identify other potential avenues to market park programs and provide strategies to reach underserved audiences.

#### *Local and Regional Influences*

Morro Bay SP is a point of pride for the local community. The park has strong support and many area residents serve as docents or are members of CCSPA. Ongoing community support is critical for the continuation of park interpretive and educational programming. The park should continue its existing outreach efforts and look for ways to expand them and build additional support.

In a region with many parks, a number of which offer interpretive centers or programs, Morro Bay SP has several features which make it unique. While sites like the MBNEP visitor center also interpret the estuary, Morro Bay SP incorporates the estuary, a rich cultural history, and the morros. When developing new exhibits for the museum, the park and its consultant will want to visit other nearby centers to ensure that the museum exhibits do not compete with them but complement them and offer an experience not available at the other sites.

### **3.3 Visitation and Visitor Use**

Based on the visitor surveys, stakeholder meetings, anecdotal comments from staff, reviews on websites such as Trip Advisor and Yelp, and observations of the NSC planners, it is clear that people

enjoy their visits to Morro Bay SP. Visitors give the museum high marks, rate their interactions with staff positively, and when given the opportunity to make suggestions for park-wide improvement, had little to suggest for the interpretive programming.

From the survey data, it appears that the visitors to Morro Bay SP are not representative of the population of California. Nearly 87% of visitors responding to the survey spoke English only in the home, whereas the 2010 census reported that only 56.5% of residents statewide speak only English. Visitors to Morro Bay SP also appear to be older than the median Californian – 41.5 years vs. 35.2 years – and less likely to have children with them (33.9% of visitors vs. 37.5% of households). While this could be a reflection of the central coast/Morro Bay vacationing demographic, the park has numerous activities to offer to young adults and families with children. Attracting these visitors, as well as non-English speaking visitors, should be actively pursued by the park. Although the survey did not ask questions related to income, the park should also strive to market itself to low-income individuals. Without a day-use or parking fee, there are few economic hindrances to enjoying its outdoor amenities. The museum is also an affordable family attraction, \$3.00 for those 18 and over and free for children under 18.

### *Trip Planning*

When asked during the visitor survey how they planned their trip, most people used their knowledge as return visitors or locals (38%). The internet was the second most common tool (37%). Visitors did not indicate that trip planning was difficult.

Internet searches support this. However, while the State Parks website, travel sites such as TripAdvisor and Yelp, and the City of Morro Bay website are good at providing general information

about the park and region, they do not always contain timely information about scheduled talks, walks, demonstrations, or special events at the park. Developing tools to help people know when they might wish to make a special trip to the park, both in advance and on short notice – e.g. advance posting of events on Facebook and sending out reminder tweets a few hours before an event through Twitter could help people plan trips even better.

### *Park Arrival*

With its various non-contiguous properties and multiple access points, it is not always clear when one is at Morro Bay SP. Installing improved park signs at key locations including the Quarry Trail, Morro Rock, and along the road from Los Osos, would provide visitors with clarity that they are at the park. Due to right of ways and property ownership, the placement of park signs will likely require coordination with the City of Morro Bay, San Luis Obispo County and/or Caltrans.

### *Orientation and Way-finding*

The planning team from the Northern Service Center found navigating the park to be challenging the first several times that they visited. Although neither the town of Morro Bay nor the park are overly large, lack of signage to and within the park, as well as the aforementioned lack of park signage at key locations, makes wayfinding a challenge. In addition to installing park signs at key locations, improving directional signage within the park (e.g. to Black Hill), along trails (e.g. the Quarry Trail), would improve the visitor experience.

### *Summary*

In conclusion, the interpretive services provided at Morro Bay State Park are solid. With its wealth of resources; dedicated staff, volunteers, and partners; and engaged and appreciative visitors,

it has the potential to provide even greater interpretive services to its visitors. The subsequent chapters provide recommendations on how to achieve this.

## *Endnotes*

1. Dr. Howard (Dick) Miller, written communication, October 3, 2013.

## CHAPTER 4: INTERPRETIVE DIRECTION

*Chapter Four provides an overview of what interpretation at Morro Bay State Park (SP) should accomplish. Mission and vision statements provide the *raison d'être* for the park's interpretive services. Goals build off the mission and vision, and provide the basis for programming and structure to develop objectives by which interpretive services can be evaluated. The interpretive period and themes provide focus on the key stories that should be interpreted at this location. The park's mission and vision for interpretation, and the goals and themes were all developed as part of the Interpretation Master Plan (IMP) process and are based on the General Plan, information provided by park staff, and feedback obtained through the stakeholder meetings and visitor surveys.*

### 4.1 Mission and Vision Statements

#### *California State Parks Mission*

To provide for the health, inspiration and education of the people of California by helping to preserve the state's extraordinary biological diversity, protecting its most valued natural and cultural resources, and creating opportunities for high-quality outdoor recreation.<sup>1</sup>

#### *DPR Interpretation Mission*

To convey messages that initially will help visitors value their experience, and that ultimately will foster a conservation ethic and promote a dedicated park constituency.<sup>2</sup>

#### *DPR Education Mission*

To provide educational experiences both in California State Parks and in

the classroom, assisting educators with curriculum needs and offering activities that enable students to investigate, research, and participate in interactive learning.<sup>3</sup>

#### *Declaration of Purpose*

The purpose of Morro Bay State Park is to make available to the people the shorelands and related uplands of Morro Bay, including the wetlands and lower reaches of Los Osos and Chorro Creeks, the bay's marsh and tidelands, and the native grasslands, woodlands, shrublands, and scenic rocky outcrops. All significant scenic, natural, cultural, and recreational resources shall be protected and perpetuated.

The existing marina and golf course in the park were constructed prior to establishment of the current State Park System classification system. These uses are inconsistent with the unit's classification as a state park due to the significant loss of native habitat that construction and maintenance of such facilities entails. Since these facilities now exist and are recognized as important historic and recreational resources, they may remain, but must not be expanded beyond their current physical size. Every effort shall be undertaken to minimize the negative effects of these facilities on the natural environment.

Morro Rock Natural Preserve, at the entrance to Morro Bay, will be protected as part of Morro Bay State Park, an American peregrine falcon nest site, but also for perpetuation of its other natural and scenic values. The Heron Rookery Natural Preserve shall be managed primarily for its value as a nesting area for great blue herons, great egrets, and other birds.

The function of the California Department of Parks and Recreation at Morro Bay State Park is to manage the unit's varied natural, cultural, esthetic, and recreational

resources in order to ensure the perpetuation of the diverse environmental complexes; to interpret them effectively; and to provide such facilities and services as are necessary for the public's full enjoyment of the unit consistent with its perpetuation.<sup>4</sup>

#### *Morro Bay State Park Mission for Interpretation*

To provide inspiration, help visitors make connections to the park, and promote stewardship through enjoyable experiences.

#### *Morro Bay State Park Vision for Interpretation*

To establish Morro Bay State Park as the place where people come to learn about Morro Bay and the nearby coast and connect with nature. Interpretation will foster community collaboration, provide learning opportunities, enhance recreation, and inspire people to engage with and support parks.

## **4.2 Interpretive Goals**

Goals build off the vision and mission statements of California State Parks and this park. Goals are broad, general concepts that describe the ultimate purpose, aim or intent of interpretation at the park. Goals are not necessarily measurable. They are the big picture, the overall results that interpretation should achieve.

The 1988 General Plan did not identify goals for interpretation. Guidelines set out in the Museum Interpretive Plan are listed in Appendix G. The following goals were developed during the IMP process by NSC and Morro Bay SP staff, based on input gathered during stakeholder meetings.

#### *Goal 1: Form Connections*

Visitors will form connections with the

Morro Bay estuary and its resources.

#### *Goal 2: Increase Stewardship*

Visitors will become active stewards of Morro Bay State Park and its resources.

#### *Goal 3: Learn*

Visitors will learn about Morro Bay estuary, its watershed and the nearby coast.

#### *Goal 4: Increase Visibility and Visitation*

A visit to Morro Bay State Park will be seen as an integral part of a trip to Morro Bay and the greater San Luis Obispo coast.

#### *Goal 5: Engage*

Strengthen ties to the community by offering opportunities for collaboration, supporting educators, and engaging non-traditional park users.

#### *Goal 6: Enrich Recreation*

Interpretation will enrich recreational opportunities at the park.

## **4.3 Interpretive Themes and Periods**

The interpretive themes set out in the 1988 General Plan do not meet the criteria for themes today, instead they would be considered topics or storylines (*see Appendix D*). Working from these themes, as well as input gathered during the stakeholder meetings, NSC and Morro Bay SP staff have developed the following themes.

### **4.3.1 Unifying Theme**

The rich biodiversity of Morro Bay State Park's greater estuarine environment is intertwined with 25 million years of natural forces and thousands of years of human history.



### 4.3.2 Primary Themes

#### 1: Biodiversity of the Greater Estuarine Environment

The greater estuarine environment surrounding Morro Bay SP is a complex ecosystem that supports multiple habitats and innumerable plants and animals.

##### *Supporting Themes*

**Complex System:** The estuary and its watershed form a complex system that is influenced by both the land and ocean.

**Watershed Health:** The health of the estuary is directly linked to the health of its watershed, making conservation in the entire watershed essential.

**Bird Habitat:** The estuary provides critical feeding, resting, and breeding grounds for resident and migratory birds.

**A Place of Refuge:** Rare, threatened, migratory, and endemic species find refuge in Morro Bay State Park.

**Nursery:** The estuary and its wetlands serve as a nursery and foraging ground for fish, birds, and small mammals.

**Eelgrass:** Eelgrass beds provide important food and habitat for a broad array of estuary inhabitants while stabilizing sediments on the bay floor.

#### 2: Intertwined

The cultural and natural stories of the estuary are woven together in a complex web, the strands of which cannot be easily separated from each other.

##### *Supporting Themes*

**People in the Environment:** With a 10,000 year history of relying on, interacting with, and modifying the

land, people are an integral part of Morro Bay's environment.

**Many Roles of Morro Bay:** The Morro Bay watershed and estuary support diverse habitats, substantial wildlife populations, numerous recreational opportunities, and a vibrant economy.

**Signs on the Landscape:** The history of people's interactions with the land and the estuary are written on the landscape of Morro Bay State Park.

**Many Faces of Morro Rock:** Morro Rock is a sacred site, a landmark, and important habitat.

**Human Impacts:** In Morro Bay, natural processes have been accelerated by human activities in and beyond the watershed.

#### 3: Natural Forces

Plate tectonics, ocean tides and waves, and a relatively stable Mediterranean climate have produced a dynamic landscape and complex ecosystem.

##### *Supporting Themes*

**Plate Tectonics:** Millions of years of interactions between the Pacific and North American plates have produced the signature landscape features and multitude of environments at Morro Bay.

**Fresh Meets Salty:** The salty waters of the ocean and the fresh waters from the land meet in the estuary, creating one of the richest habitats on Earth.

**Mediterranean Climate:** Morro Bay's Mediterranean climate creates a seasonally variable flow of freshwater into the estuary and is a significant factor in how the estuary functions.

Always Changing: Estuaries are dynamic ecosystems that change over time in response to variations in climate, ocean conditions, and sediment inputs from the land.

### 4.3.3 Secondary Themes

#### 1: Human History

The rich natural resources and remarkable landscape in Morro Bay State Park have attracted people for millennia as a home, a sacred site, a landmark, a source of livelihood, and a place for recreation and restoration.

##### *Supporting Themes*

**Many Roles:** The Morro Bay area provides homes, sources of livelihood, and numerous places for recreation and restoration.

**Traditional Homeland:** Morro Bay is the traditional homeland for both the Salinan and Chumash people.

**Sacred Site:** Morro Rock is a sacred site to both the Salinan and Chumash people.

**Spanish-Mexican Era:** Beginning in the late 1700s, Spanish missionaries, and later Mexican ranchers, largely used this region for cattle grazing.

**Fishing:** Commercial and recreational boating and fishing are key parts of Morro Bay's past, present, and future.

**Recreation:** Since the early 20th century, recreation has been an important part of the Morro Bay economy.

**The Depression and the War:** Two major activities of the 20th century—the Great Depression and World War II— influenced the development of Morro Bay State Park.

#### 2: Resource Management

Morro Bay State Park preserves the health of the environment while promoting the enjoyment and safety of its visitors.

##### *Supporting Themes*

**A Century of Commitment:** For over nearly a century, Morro Bay SP has served as an example of California's commitment to park preservation and investment in public works.

**Preserving Ecosystems:** Morro Bay SP protects remnants of once-abundant coastal ecosystems including estuarine wetlands, salt marsh, perennial grasslands, eelgrass beds, and maritime chaparral.

**Wetland Preservation:** Morro Bay SP preserves one of the largest, least disturbed, and healthiest wetland systems on the central California coast.

**Cultural History Preservation:** Evidence of our shared cultural history is protected within Morro Bay SP.

**Endangered Species Success Stories:** Morro Bay SP has been an integral part of multiple endangered species success stories.

#### 3: Recreation

Morro Bay SP is a premier destination for easily watchable wildlife and outstanding recreational opportunities in a variety of natural environments.

##### *Supporting Themes*

**Variety of Recreation:** Morro Bay SP offers both land and water-based recreational opportunities.

**Bird Watching:** Morro Bay SP provides one of the best bird-watching destinations on the central California coast.

Responsible Recreation 1: Careful recreation can help prevent wildlife disturbance and habitat damage.

Responsible Recreation 2: Knowing and following the rules can help you enjoy the bay while protecting its sensitive resources.

#### 4: Climate Change

At the end of the Pleistocene, a warming climate created the estuary; today, after 10,000 years of climate stability, rapid and dramatic climate change threatens its existence.

##### *Supporting Themes*

Estuary Impacts 1: Species and habitat distributions in the greater estuarine ecosystem may be altered by a changing climate.

Estuary Impacts 2: Rising sea levels, more severe winter storms, and altered precipitation patterns will have complex and costly impacts on the greater estuarine ecosystem and bayside communities.

Greater SLO County Impacts: Altered precipitation patterns, more extreme storm events, sea level rise, increased flooding risk, altered distribution of plants and animals, increased sedimentation and increased likelihood of fire are likely impacts of climate change in San Luis Obispo County.

Invasive Species: Scientists fear that invasive species may flourish in the hotter, drier, longer summers and altered precipitation patterns that are anticipated with a changing climate.

Taking Action: As scientists learn more about how climate change will affect Morro Bay, we will be able to take more decisive actions to help protect this special place.

#### 4.3.4 Interpretive Periods

The Interpretive Period defined in the General Plan covers “geologic times to the present.” As part of the 2011-12 Interpretive Master Planning Process, that broad period has been refined to:

##### *Geologic Time (Primary)*

- Late Oligocene/early Miocene (formation of the morros, 20-25 million years ago)
- Late Pleistocene-Holocene (formation of the estuary and current ecosystem 10,000 years ago-present)

##### *Human History (Secondary)*

- Resource economy (fishing and farming), ~10,000 years ago to present
- Early tourism and recreation, 1900-1930
- Great Depression and World War II, 1930-1945
- Post-war tourism and recreation, 1945-present

#### 4.4 Educational Framework

Educators have indicated that in order to justify field trips, activities should help them meet state standards. As of 2014, the standards in California are in flux. The state recently adopted the Common Core standards. It anticipates adopting the Next Generation Science standards, due to be finalized by 2015. Lastly, the state of California has recently developed the Education and Environment Initiative (EEI). The EEI offers K-12 environmental education lessons that are tied to the state standards. The standards will likely continue to evolve over the life of this plan and should be consulted when developing educational programs or updating significant exhibits, such as the museum. The current standards that are applicable to Morro Bay State Park (SP) are included

in Appendices H, I and J.

*Endnotes*

1. Interpretation & Education Workbook
2. Interpretation & Education Workbook
3. Interpretation & Education Workbook
4. Morro Bay SP General Plan, 35-36



## CHAPTER 5: RECOMMENDATIONS

*Chapter 5 presents solutions for improving, enhancing, and expanding interpretive services and park operations to enrich the visitor experience and promote resource protection at Morro Bay State Park (SP). Each of the six previously identified goals (see Chapter 4) is met through a series of objectives, strategies, and tasks. Projects which will meet these goals and objectives are described in Chapter 6: Interpretation Action Plan.*

### 5.1 Goals, Objectives, and Strategies

#### Goal 1. Form Connections

Visitors will form connections with Morro Bay State Park, the estuary, and their resources.

##### **Objective 1.1 The number of people participating in programs offered by Morro Bay State Park will increase.**

*Strategy 1.1.1 Increase the number, variety, and efficacy of interpretive programs offered by Morro Bay State Park.*

*Strategy 1.1.2 Increase the number, variety, and efficacy of educational programs offered by Morro Bay State Park.*

*Strategy 1.1.3 Use traditional and new media to promote and advertise interpretive programs.*

##### **Objective 1.2 Membership in CCSPA will increase**

*Strategy 1.2.1 Make it easy and attractive for visitors to join CCSPA*

##### **Objective 1.3 Donations will increase**

*Strategy 1.3.1 Make it easy for visitors to donate.*

*Strategy 1.3.2 Showcase projects made possible by donations.*

##### **Objective 1.4 The number of volunteers at the park will increase**

*Strategy 1.4.1 Increase and enhance volunteer recruitment*

*Strategy 1.4.2 Enhance volunteer training*

#### Goal 2. Increase Stewardship

Visitors will become active stewards of Morro Bay State Park and its resources.

**Objective 2.1 Volunteer participation in park stewardship activities will increase.**

*Strategy 2.1.1 Provide short-term stewardship activities for corporate, community, fraternal, family groups, and individuals.*

*Strategy 2.1.2 Provide long-term stewardship activities for corporate, community, fraternal, family groups, and individuals.*

*Strategy 2.1.3 Develop volunteer opportunities that mix stewardship with interpretation and/or recreation.*

**Objective 2.2 Resource damage will decrease.**

*Strategy 2.2.1 Use interpretation to raise visitor awareness of actions that may be causing resource damage.*

*Strategy 2.2.2 Encourage environmentally responsible behaviors (ERBs)*

*Strategy 2.2.3 Develop programs that build a sense of ownership and responsibility for the park.*

**Goal 3. Learn about Morro Bay**

Visitors will learn about Morro Bay estuary, its watershed, and the nearby coast.

**Objective 3.1 Visitors will be able to state at least three reasons that estuaries are important**

*Strategy 3.1.1 Interpret the importance of the estuaries in general and the Morro Bay estuary in particular.*

*Strategy 3.1.2 Ensure all volunteers and staff who have contact with visitors can explain why estuaries are important.*

**Objective 3.2 Visitors will be able to name at least three threatened or endangered (T&E) species that live in or in the vicinity of Morro Bay SP and how the park assists in their survival.**

*Strategy 3.2.1 Interpret the T&E species of Morro Bay*

*Strategy 3.2.2 Interpret the role of Morro Bay SP, including the physical land, the staff, volunteers, and visitors, in the protection and recovery of T&E species.*

**Objective 3.3 Visitors will be able to explain how climate change is currently or may in the future affect the Morro Bay estuary and Morro Bay SP.**

*Strategy 3.3.1 Stay abreast of current research on climate change and its impacts and share information with the public.*



*Strategy 3.3.2 Interpret climate change according to the best available science and current consensus in the scientific community.*

## **Goal 4: Increase Visibility and Visitation**

A visit to Morro Bay SP will be seen as an integral part of a living in and visiting Morro Bay and the greater San Luis Obispo Coast.

### **Objective 4.1 Visitors to Morro Bay will visit at least one Morro Bay SP site in addition to Morro Rock.**

*Strategy 4.1.1 Provide interpretive programming and special events at locations throughout MBSP.*

*Strategy 4.1.2 Use interpretation and orientation media to inform visitors about the extent of MBSP, its various resources, and recreational opportunities and to help them identify the assorted sites.*

*Strategy 4.1.3 Use interpretive media to improve wayfinding and orientation*

*Strategy 4.1.4 Use consistent design elements to brand interpretive media at various park locations.*

*Strategy 4.1.5 Promote lesser known areas of the park*

*Strategy 4.1.6 Work with the larger Morro Bay community to offer interpretive programming and promote park.*

### **Objective 4.2 Park visitation will increase and become more diverse.**

*Strategy 4.2.1 Identify, prioritize, and reach out to underrepresented and key groups (e.g. Spanish speaking households, families, teens, and college students).*

*Strategy 4.2.2 Ensure that interpretation is accessible to non-English speaking and/or reading audiences (e.g. foreign visitors, pre-literate children).*

### **Objective 4.3 A higher proportion of visitors will report attending an interpretive program at MBSP.**

*Strategy 4.3.1 Increase types and number of interpretive programs*

*Strategy 4.3.2 Use both new and traditional media to improve publicity for MBSP programs.*

*Strategy 4.3.3 Provide programming targeted at specific groups.*

## **Goal 5. Engage Local Community and Stakeholders**

Strengthen ties to the community and stakeholders particularly teachers and Native American tribes.

### **Objective 5.1 Offer interpretive programs in collaboration with other public and/or private entities.**

*Strategy 5.1.1 Maintain and strengthen existing partnerships and develop new ones within the local community.*

*Strategy 5.1.2 Provide a venue for other organizations' or agencies' interpretive programming.*

### **Objective 5.2 The local educational community will make greater use of the park and its resources.**

*Strategy 5.2.1 Ensure field trips are affordable and relevant.*

*Strategy 5.2.2 Ensure educational programming meets teachers' needs.*

*Strategy 5.2.3 Increase promotion of school programs*

### **Objective 5.3 Collaborate with the Northern Chumash and Salinan tribes to develop cultural interpretation.**

*Strategy 5.3.1 Strengthen relationships between the park and the tribes*

*Strategy 5.3.2 Provide opportunities for the Northern Chumash and Salinan people to interpret their own stories.*

## **Goal 6. Enrich recreation**

Interpretation will enrich recreational opportunities at the park.

### **Objective 6.1 Park-led or affiliated recreational activities will include an interpretive component.**

*Strategy 6.1.1 Provide opportunities for visitors to participate in recreational programs that include interpretation*

*Strategy 6.1.2 Provide visitors with the opportunity for self-guided interpretation at popular recreational sites.*

### **Objective 6.2 A higher proportion of visitors will report attending interpretive programs at Morro Bay State Park**

*Strategy 6.2.1 Develop programs specifically targeted at youth*

*Strategy 6.2.2 Develop a greater variety of interpretive-recreation programs*



# CHAPTER 6: INTERPRETATION ACTION PLAN

*The Interpretation Action Plan (IAP) identifies and prioritizes interpretive services for Morro Bay State Park (SP) to implement between 2014 and 2034. The IAP can be used for both long-range planning and to help the park's Annual Interpretation Implementation Plan (DOM 0902.6.3.3 Interpretation and Education).*

## 6.1 Overview

An Interpretation Action Plan builds off the master plan and provides a coordinated direction interpretation at the park. The Morro Bay SP IAP includes tasks that will help the park meet the goals, objectives, and strategies set out in the IMP. The IAP contains two parts. The first is a matrix which contains the following information:

1. Summarized goals, objectives, strategies, and the tasks that support them.
2. Estimated cost to complete each task. The cost estimates reflect 2015 prices and are reflected as a range:

\$	< \$20,000
\$\$	\$20,000 – \$50,000
\$\$\$	\$50,001 – \$250,000
\$\$\$\$	\$250,001 - \$1,000,000
\$\$\$\$\$	> \$1,000,000.00

Due to inflation, costs should be re-evaluated and confirmed prior to starting each task.

3. Priority. Each task is assigned a priority based on its impact on improving interpretative and educational services at the park. Priorities range from one to three with

one being high; two, medium; and three, low.

4. Each task is also assigned a “phase” for implementation. The plan is broken into three phases: phase one (2014–2020), phase two (2021-2027), phase three (2028–2034). The phases do not necessarily match the priority. For example, some tasks may be listed as priority one but not be slated to be completed until phase two or even phase three. This apparent incongruity should alert the reader that the task requires additional research, work with specialists, environmental review, or the development of MOUs or other multi-agency agreements. Others may be priority two or three, but are slated for completion in phase one. These are simple tasks that can be completed in phase one without a significant investment of scarce resources (staff and/or time). The phases are recommendations and should be treated as such. If, for example, funding becomes available for a phase three project during phase one, the park should consider pursuing it and adjust the plan accordingly. It should be noted that many actions should continue on past their when they are initially implemented, e.g. training, working with partners, etc.
5. Parties involved in completing a project. The responsibility for implementing the tasks laid out in the IAP lies State Parks; however, partners are welcome, even encouraged, to select projects and take a role to help accomplish them. Many tasks are of sufficient complexity that they will require multi-person, multi- disciplinary teams. With a just a few exceptions, Morro Bay SP interpretive staff are involved in the implementation of all tasks.

**Management** refers to park and district superintendents. While the

appropriate superintendent should be involved in the decision to implement any of the tasks, active participation will be necessary in some of the more complex projects, e.g. developing a new visitor center or establishing agreements with other organizations or agencies.

**Interpretive staff** refers to the park and district interpreters.

**Other staff** includes archaeologists, environmental scientists, rangers, maintenance staff, etc., who work at the sector or district level.

**Headquarters/Service Center** indicates that DPR staff with specialized skills or background e.g. architects, engineers, IT, exhibit design, curation, should be involved.

**Co-operating association** refers to the Central Coast State Parks Association. A few of the tasks lie solely within their purview.

**Docents/Volunteers** are included in many tasks where they will likely be the primary people implementing programs or acting in an advisory role.

**Other stakeholders** is a broad category which includes, but is not limited to: teachers, representatives from the Northern Chumash and Salinan tribes, the Morro Bay National Estuary Program, the Morro Bay Audubon Society, and the City of Morro Bay.

**Contractors** indicates that someone with specialized skills—e.g. graphic design, survey design and administration, exhibit design, curriculum development—is needed.

6. Project Type. Each task is categorized as one of six project types.

**Non-personal** includes simple interpretive media that does not require an in-person presenter, e.g. panels, brochures, smart phone apps, etc.

**Facilities** includes non-personal interpretive media and support structures, more complex than panels, that often require the specialized skills of architects, engineers, landscape architects, electricians, etc.

**Education** includes services that are specifically designed for school groups.

**Personal** refers to interpretation that is presented by one or more persons - staff or volunteer - to another person or persons.

**Community outreach** includes projects that engage partners and are designed to reach new and existing audiences and encourage them to become more involved with the park.

**Research and training** tasks will help fill in knowledge gaps and improve the knowledge and skills of staff and volunteers.

The second part of the action plan is a series of 20 proposals. Each of these proposals takes multiple, related tasks and combines them into a single project. As most proposals will require additional funds, each contains information can be used to help develop funding requests from the department or outside sources. Each proposal contains the following information:

#### *Project Purpose*

The first paragraph describes the need for the proposed interpretive service. This information will help future staff understand the rationale behind the proposal. The content can be used to justify funding requests to the department,

State legislature, or outside grant making agencies or organizations.

#### *Project Scope*

Paragraph two provides a broad scope of work for the proposed service. The scopes of work are intentionally left vague in terms of details, e.g. number and location of panels, types of technology, etc., to allow the park staff flexibility to adjust each proposal based on available resources and best practices at the time of implementation.

#### *Tasks Met*

Due to their complexity, many of the proposals address more than one task. The final part of the proposals identifies which tasks each proposal meets.

Some proposals are also accompanied by one or more concept drawings. These renderings should not be taken literally, as if they were the finished design, but as a starting point for discussion.

## 6.2 Task Matrix

Goals, Objectives, Strategies, and Tasks	Budget and Schedule			Participants								Project Type					
	Cost Estimate	Priority	Phase	Management	Interp Staff	Other Staff	HQ/Service Center	Co-operating Association	Docents/Volunteers	Other Stakeholders	Contractor	Non-personal	Facilities	Education	Personal	Community Outreach	Research and Training
<b>1. Form Connections</b>																	
<b>1.1 Increase program participation</b>																	
<i>1.1.1 Increase interpretive programs</i>																	
1.1.1.a Continue to offer existing programs	\$	1	1		X			X							X		
1.1.1.b Develop new programs	\$	1	1		X		X								X		
1.1.1.c Evaluate programs, provide feedback, and implement improvements	\$	1	1	X	X												
<i>1.1.2 Increase educational programs</i>																	
1.1.2.a Develop advisory committee of teachers	\$	1	1		X				X								
1.1.2.b Align on-site field trips with current standards	\$\$	1	1		X				X						X		
1.1.2.c Evaluate programs and impelment improvements	\$	1	1		X				X						X		



Goals, Objectives, Strategies, and Tasks	Budget and Schedule			Participants								Project Type					
	Cost Estimate	Priority	Phase	Management	Interp Staff	Other Staff	HQ/Service Center	Co-operating Association	Docents/Volunteers	Other Stakeholders	Contractor	Non-personal	Facilities	Education	Personal	Community Outreach	Research and Training
	1.1.2.d Develop content materials for teachers to use independent of or to prepare for field trips.	\$	1	1	X	X					X				X		
1.1.2.e Develop and offer standards-based, off-site educational programs	\$	2	1		X		X			X	X			X			
1.1.2.f Develop distance learning programs, e.g. PORTS.	\$\$\$	2	2		X		X							X			
1.1.2.g Offer distance learning programs, e.g. PORTS	\$\$	2	2		X												
1.1.2.h Translate educational materials into Spanish	\$	2	2		X						X			X			
1.1.2i Recruit bilingual (Spanish-English) docents/volunteers to provide Spanish language school programs.	\$	1	1		X			X	X	X				X			
1.1.3 Use variety of media to promote and advertise																	

Goals, Objectives, Strategies, and Tasks	Budget and Schedule			Participants								Project Type					
	Cost Estimate	Priority	Phase	Management	Interp Staff	Other Staff	HQ/Service Center	Co-operating Association	Docents/Volunteers	Other Stakeholders	Contractor	Non-personal	Facilities	Education	Personal	Community Outreach	Research and Training
1.1.3.a Develop a marketing plan that identifies key audiences and the most effective means for reaching them.	\$\$	2	2	X	X			X		X	X					X	
1.1.3.b Assign staff or volunteer to keep abreast of emerging new media platforms and make use of them.	\$	2	1		X					X						X	
1.1.3.c Develop and maintain relationships with new and traditional media sources.	\$	3	1	X	X	X		X								X	
<b>1.2 Membership in CCSPA will increase</b>																	
<i>1.2.1 Make it easy to join CCSPA</i>																	
1.2.1.a Have information about CCSPA at visitor center bookstore.	\$	3	1					X								X	
1.2.2.b Develop QR code or similar technology to provide instant electronic access to CCSPA membership page.	\$	3	1					X								X	

Goals, Objectives, Strategies, and Tasks	Budget and Schedule		Participants								Project Type						
	Cost Estimate	Priority	Phase	Management	Interp Staff	Other Staff	HQ/Service Center	Co-operating Association	Docents/Volunteers	Other Stakeholders	Contractor	Non-personal	Facilities	Education	Personal	Community Outreach	Research and Training
<b>1.3 Donations will increase</b>																	
<i>1.3.1 Make it easy to donate</i>																	
1.3.1.a Build and install donation box at the visitor center	\$	3	1	X	X	X		X								X	
1.3.1.b Offer visitors option to round purchase total up to nearest dollar	\$	3	1	X	X	X		X								X	
1.3.1.c Build donation box and have available at programs	\$	3	1		X	X		X								X	
1.3.1.d Set up online account and place "donate here" button on Morro Bay SP and/or CCSPA websites	\$	3	1	X	X	X	X	X								X	
<i>1.3.2 Showcase projects</i>																	
1.3.2a Create donation wish list and make available online	\$	3	1	X	X			X								X	
1.3.2.b Develop capital campaigns e.g. for new visitor center exhibits and track progress online	\$\$	2	1	X	X			X								X	

Goals, Objectives, Strategies, and Tasks	Budget and Schedule			Participants								Project Type					
	Cost Estimate	Priority	Phase	Management	Interp Staff	Other Staff	HQ/Service Center	Co-operating Association	Docents/Volunteers	Other Stakeholders	Contractor	Non-personal	Facilities	Education	Personal	Community Outreach	Research and Training
1.3.2.c Recognize items or programs made possible by visitor donations.	\$	3	1	X	X			X								X	
<b>1.4 Increase in volunteers</b>																	
<i>1.4.1 Volunteer recruitment</i>																	
1.4.1.a Identify programs that need additional volunteer support and create position descriptions.	\$	2	1	X	X											X	
1.4.1.b Develop volunteer opportunities for and recruit youth/teens.	\$	3	2	X	X											X	
1.4.1.c Conduct outreach and recruit volunteers from under-represented communities.	\$	1	1	X	X											X	
<i>1.4.2 Volunteer training</i>																	
1.4.2.a Continue to offer volunteer training. Evaluate and modify as necessary.	\$	1	1-3	X	X											X	X

Goals, Objectives, Strategies, and Tasks	Budget and Schedule		Participants								Project Type						
	Cost Estimate	Priority	Phase	Management	Interp Staff	Other Staff	HQ/Service Center	Co-operating Association	Docents/Volunteers	Other Stakeholders	Contractor	Non-personal	Facilities	Education	Personal	Community Outreach	Research and Training
1.4.2.b Develop and provide specialized training for school group Docents/ Volunteers that blends best practices in interpretation with tips for incorporating content standards and EEI principles.	\$	1	1		X					X				X			X
1.4.2.c Provide materials online to enable volunteers to expand their knowledge and skills.	\$	2	2		X												X
<b>2. Increase Stewardship</b>																	
<b>2.1 Increase in volunteer stewardship</b>																	
<i>2.1.1 Short-term activities</i>																	
2.1.1.a Continue to offer existing short-term projects such as litter-getters.	\$	1	1-3		X											X	
2.1.1.b Create annual plan of projects that can be completed in one day or less by volunteers.	\$	2	2		X	X										X	

Goals, Objectives, Strategies, and Tasks	Budget and Schedule			Participants								Project Type					
	Cost Estimate	Priority	Phase	Management	Interp Staff	Other Staff	HQ/Service Center	Co-operating Association	Docents/Volunteers	Other Stakeholders	Contractor	Non-personal	Facilities	Education	Personal	Community Outreach	Research and Training
2.1.1.c Identify and recruit groups interested in short-term projects, e.g. invasive plant removal, trash cleanup.	\$	2	2		X											X	
<i>2.1.2 Long-term stewardship commitments</i>																	
2.1.2.a Identify long-term projects, e.g. adopt a trail.	\$	2	2	X	X	X										X	
2.1.2.b Identify and recruit groups to commit to long-term projects.	\$	2	2		X											X	
2.1.2.c Develop method for recognizing volunteer groups.	\$	2	2		X											X	
<i>2.1.3 Stewardship with recreation and/or interpretation</i>																	
2.1.3.a Develop stewardship events, e.g. guided hikes with trail maintenance, guided hikes with litter removal, plant ID with invasive plant removal.	\$	2	1		X	X										X	

Goals, Objectives, Strategies, and Tasks	Budget and Schedule			Participants								Project Type					
	Cost Estimate	Priority	Phase	Management	Interp Staff	Other Staff	HQ/Service Center	Co-operating Association	Docents/Volunteers	Other Stakeholders	Contractor	Non-personal	Facilities	Education	Personal	Community Outreach	Research and Training
<b>2.2 Resource damage will decrease.</b>																	
<i>2.2.1 Raise awareness</i>																	
2.2.1.a Identify resource damage caused by lack of knowledge.	\$	1	1		X	X											X
2.2.1.b Develop consistent, memorable messages about resource protection	\$	1	1		X												X
2.2.1.c Include at least one relevant resource protection message (RPM) in each interpretive program.	\$	2	2		X									X			
2.2.1.d Include at least one RPM with every school program.	\$	2	1		X								X				
2.2.1.e Use social media to share a daily RPM.	\$	3	1		X											X	
2.2.1.f Develop and install interpretive panels that identify resources to protect and how people can protect them.	\$/panel	1	1		X	X										X	

Goals, Objectives, Strategies, and Tasks	Budget and Schedule			Participants								Project Type					
	Cost Estimate	Priority	Phase	Management	Interp Staff	Other Staff	HQ/Service Center	Co-operating Association	Docents/Volunteers	Other Stakeholders	Contractor	Non-personal	Facilities	Education	Personal	Community Outreach	Research and Training
2.2.2 Encourage environmentally responsible behaviors (ERBs)																	
2.2.2.a Identify key ERBs to promote.	\$	1	1		X												X
2.2.2.b Develop positive messages that encourage people how to act in lieu of, or along with, more traditional “do not do this” messages.	\$	1	1		X												X
2.2.2.c Include ERB messages with recreational and interpretive programs.	\$	2	1		X									X			
2.2.2.d Include ERB messages with school programs	\$	2	1		X									X			
2.2.2.e Provide instruction and training to all volunteer and paid interpreters on how to model and interpret desired ERBs	\$	2	2		X												X



Goals, Objectives, Strategies, and Tasks	Budget and Schedule			Phase	Participants								Project Type					
	Cost Estimate	Priority			Management	Interp Staff	Other Staff	HQ/Service Center	Co-operating Association	Docents/Volunteers	Other Stakeholders	Contractor	Non-personal	Facilities	Education	Personal	Community Outreach	Research and Training
<b>3. Learn about Morro Bay</b>																		
<b>3.1 Explain importance of estuaries</b>																		
<i>3.1.1. Interpret importance of estuaries</i>																		
3.1.1.a Identify 5-10 reasons that estuaries, with an emphasis on the Morro Bay estuary, are important and develop messages.	\$	1	1	1	X	X												X
3.1.1.b Develop new museum exhibits that interpret the importance of estuaries with specific focus on the Morro Bay estuary	\$\$\$\$	1	2-3	X	X	X									X			
3.1.1.c Develop at least one interpretive panel about estuaries at each site with view of or access to the estuary.	\$/panel	1	1-3	X	X	X												X

Goals, Objectives, Strategies, and Tasks	Budget and Schedule			Participants								Project Type					
	Cost Estimate	Priority	Phase	Management	Interp Staff	Other Staff	HQ/Service Center	Co-operating Association	Docents/Volunteers	Other Stakeholders	Contractor	Non-personal	Facilities	Education	Personal	Community Outreach	Research and Training
3.1.1.d Offer walks and talks that interpret the importance of estuaries.	\$	2	1-3		X			X	X						X		
3.1.2 Ensure all volunteers and staff who have contact with visitors can explain why estuaries are important.																	
3.1.2a Develop concise, memorable messages that build off of Task 3.1.1.a and provide to all volunteers and staff who may have contact with visitors.	\$	1	1	X	X	X			X								X
3.1.2b Write white paper on importance of estuaries and include in orientation materials for all new volunteers and staff.	\$	2	1		X				X								X
<b>3.2 Identify threatened or endangered species</b>																	
3.2.1 Interpret threatened and endangered (T&E) species																	

Goals, Objectives, Strategies, and Tasks	Budget and Schedule		Participants								Project Type						
	Cost Estimate	Priority	Phase	Management	Interp Staff	Other Staff	HQ/Service Center	Co-operating Association	Docents/Volunteers	Other Stakeholders	Contractor	Non-personal	Facilities	Education	Personal	Community Outreach	Research and Training
3.2.1.a Develop new museum exhibits that interpret the T&E species of the Morro Bay area.	\$\$\$\$	1	2-3	X	X	X	X	X	X	X	X		X				
3.2.1.b Develop and install at least one interpretive panel about T&E species at each location that is habitat for an endangered species.	\$/panel	1	1-3	X	X	X					X	X					
3.2.1.c Offer walks and talks that interpret T&E species of Morro Bay.	\$	2	1-3		X			X									
<b>3.2.2 Interpret the role of MBSP in the recovery of T&amp;E species.</b>																	
3.2.2.a Identify endangered species success stories.	\$	1	2	X	X	X											X
3.2.2.b Develop museum exhibits that interpret endangered species success stories and the roles of Morro Bay State Park, scientists, and citizen activists in making them happen.	\$\$\$\$	1	2-3	X	X	X	X	X	X	X	X		X				

Goals, Objectives, Strategies, and Tasks	Budget and Schedule			Participants								Project Type					
	Cost Estimate	Priority	Phase	Management	Interp Staff	Other Staff	HQ/Service Center	Co-operating Association	Docents/Volunteers	Other Stakeholders	Contractor	Non-personal	Facilities	Education	Personal	Community Outreach	Research and Training
3.2.2.c Develop panels that interpret endangered species success stories and the roles of Morro Bay State Park, scientists, and citizen at locations integral to the story (e.g. Morro Rock).		2	1	X	X	X					X	X					
<b>3.3 Visitors will be able to explain how climate change is currently or may in the future affect the Morro Bay estuary and Morro Bay SP.</b>																	
<i>3.3.1 Stay abreast climate change research</i>																	
3.3.1.a Designate an interpreter, volunteer, or intern to keep abreast of current research on climate change and to disseminate information as it becomes available.	\$	1	1		X												X
3.3.1.b Provide annual or biannual training to interpretive staff and volunteers on state of and findings by climate change research.	\$	2	1		X												X

Goals, Objectives, Strategies, and Tasks	Budget and Schedule			Participants								Project Type					
	Cost Estimate	Priority	Phase	Management	Interp Staff	Other Staff	HQ/Service Center	Co-operating Association	Docents/Volunteers	Other Stakeholders	Contractor	Non-personal	Facilities	Education	Personal	Community Outreach	Research and Training
3.3.2 Use best available science																	
3.3.2.a Recruit at least one climate change specialist to review interpretive materials addressing climate change.	\$	2			X												X
3.3.2.b Make the park available as a venue for research on climate change impacts to the Morro Bay estuary.	\$	2	2-3	X	X	X											X
3.3.2.c Recruit and collaborate with researchers from universities or other government agencies to study climate change and its impacts on the Morro Bay estuary and parklands.	\$	2	2-3	X	X	X											X

Goals, Objectives, Strategies, and Tasks	Budget and Schedule			Phase	Participants								Project Type					
	Cost Estimate	Priority	Phase		Management	Interp Staff	Other Staff	HQ/Service Center	Co-operating Association	Docents/Volunteers	Other Stakeholders	Contractor	Non-personal	Facilities	Education	Personal	Community Outreach	Research and Training
3.3.2.d Develop or participate in established citizen science activities that allow and encourage visitors to provide real time data to help develop baselines and track trends that may be attributable to climate change.	\$	2	1	X	X	X				X							X	
3.3.2.e Develop easily updated interpretive media to reflect advances in climate change science (i.e. not panels or permanent exhibits).	\$\$	2	2	X	X	X				X	X	X						
<b>4. Increase Visibility and Visitation</b>																		
4.1. Visitors will stop at more than one place																		
4.1.1 Provide programming throughout the park																		
4.1.1.a Continue to offer lecture series and participate in special events.	\$	1	1		X			X							X			

Goals, Objectives, Strategies, and Tasks	Budget and Schedule			Participants								Project Type					
	Cost Estimate	Priority	Phase	Management	Interp Staff	Other Staff	HQ/Service Center	Co-operating Association	Docents/Volunteers	Other Stakeholders	Contractor	Non-personal	Facilities	Education	Personal	Community Outreach	Research and Training
4.1.1.b Offer guided hikes and walks of varying lengths and difficulty at Black Hill, the Quarry Trail, Peninsular-Marina Trail, and Morro Rock.	\$	1	1		X			X	X						X		
4.1.2 Inform visitors about park opportunities																	
4.1.2.a Develop new museum exhibits that interpret the various habitats and recreational opportunities in the park.	\$\$\$\$	1	2	X	X	X	X	X	X	X	X		X				
4.1.2.b Develop user-friendly digital tools that identify key park locations, recreational opportunities, and interpretive destinations based on visitor interest.	\$	2	2	X	X						X						
4.1.3 Improve wayfinding and orientation																	

Goals, Objectives, Strategies, and Tasks	Budget and Schedule			Participants								Project Type					
	Cost Estimate	Priority	Phase	Management	Interp Staff	Other Staff	HQ/Service Center	Co-operating Association	Docents/Volunteers	Other Stakeholders	Contractor	Non-personal	Facilities	Education	Personal	Community Outreach	Research and Training
4.1.3.a Develop sign standards to create a uniform look and feel and ensure that interpretive, wayfinding, and identification signs are consistent throughout the various park locations.	\$	1	1	X	X	X	X				X	X					
4.1.3.b Develop park map appropriate for use on panels and install at trailheads and high-visitation areas and make available on-line.	\$	1	1	X	X	X	X				X	X					
4.1.3.c Identify major visitor access points and determine if they should have State Park Sign (signage program ca. 2014) or other, smaller marker.	\$	1	1	X	X	X						X					
4.1.3.d Identify locations in park that need improved directional signage (e.g. road to Black Hill).	\$	1	1	X	X	X						X					



Goals, Objectives, Strategies, and Tasks	Budget and Schedule			Participants								Project Type					
	Cost Estimate	Priority	Phase	Management	Interp Staff	Other Staff	HQ/Service Center	Co-operating Association	Docents/Volunteers	Other Stakeholders	Contractor	Non-personal	Facilities	Education	Personal	Community Outreach	Research and Training
4.1.3.e Where signage may require placement on non-DPR property, work with CalTrans, San Luis Obispo County, and City of Morro Bay as necessary to install improved and new directional and identification signage.	\$	1	2	X								X					
4.1.4 Use consistent design elements																	
4.1.4.a Develop a uniform set of design principals and elements.	\$	1	1	X	X	X	X				X						
4.1.4.b Use design elements consistently on physical interpretive media throughout the park (e.g. panels, exhibits, maps, etc.)	\$	1	1-3														
4.1.5. Promote lesser known locales																	
4.1.5.a Identify lesser-known locations that can withstand increased visitor traffic.	\$\$	3	3	X	X	X											X

Goals, Objectives, Strategies, and Tasks	Budget and Schedule			Participants								Project Type					
	Cost Estimate	Priority	Phase	Management	Interp Staff	Other Staff	HQ/Service Center	Co-operating Association	Docents/Volunteers	Other Stakeholders	Contractor	Non-personal	Facilities	Education	Personal	Community Outreach	Research and Training
4.1.5.b Identify key user groups (e.g. outdoor clubs) and conduct outreach to encourage visitation.	\$	3	3		X		X				X						X
4.1.5.c Use social media (e.g. Facebook, Instagram) to highlight lesser-known park areas.	\$	3	3		X												X
4.1.6 Work with community to offer programs																	
4.1.6.a Continue to work with CCSPA to offer interpretive programs per PRC 513.	\$	1	1-3		X			X							X		
4.1.6.b Identify potential partners among other public agencies, nonprofit organizations, cultural groups, and business, particularly ecotourism and outdoor recreation outfitters, and coordinate new interpretive or interpretive/recreational programming.		1	1-3		X				X							X	

Goals, Objectives, Strategies, and Tasks	Budget and Schedule			Participants								Project Type					
	Cost Estimate	Priority	Phase	Management	Interp Staff	Other Staff	HQ/Service Center	Co-operating Association	Docents/Volunteers	Other Stakeholders	Contractor	Non-personal	Facilities	Education	Personal	Community Outreach	Research and Training
4.1.6.c Develop interpretive programs with new and existing partners to share resources and increase visitor access to park.	\$-\$-\$	2	2	X	X			X		X					X		
<b>4.2 More diverse visitor base</b>																	
<i>4.2.1 Reach out to underrepresented groups</i>																	
4.2.1.a Identify and remove barriers to participation/park visitation.		1	1	X	X	X	X			X	X						X
4.2.1.b Identify media sources and influencers for priority groups, conduct outreach, and build relationships.		1	1		X					X						X	
4.2.1.c Develop a targeted program to recruit volunteers from priority groups.		1	2	X	X			X								X	
4.2.1.d Develop programs to introduce non-park users to day-use activities and camping in MBSP.		1	2	X	X	X	X	X		X						X	

Goals, Objectives, Strategies, and Tasks	Budget and Schedule			Participants								Project Type					
	Cost Estimate	Priority	Phase	Management	Interp Staff	Other Staff	HQ/Service Center	Co-operating Association	Docents/Volunteers	Other Stakeholders	Contractor	Non-personal	Facilities	Education	Personal	Community Outreach	Research and Training
4.2.2 Interpret to non-English speaking audiences																	
4.2.2.a Identify high-priority languages to reach non-English speaking visitors.	1	1	1	X						X	X						X
4.2.2.b Recruit bilingual Docents/ Volunteers.		1	1	X					X								
4.2.2.c Provide audio translations in museum exhibit audio components for high-priority languages.		1	2-3	X						X	X		X				
4.2.2.d Provide written translations in high-priority languages for museum exhibits, interpretive panels, and other print media.		1	2-3	X							X						
<b>4.3 Increase in program attendance</b>																	
4.3.1 Increase types and number of interpretive programs																	

Goals, Objectives, Strategies, and Tasks	Budget and Schedule			Participants								Project Type					
	Cost Estimate	Priority	Phase	Management	Interp Staff	Other Staff	HQ/Service Center	Co-operating Association	Docents/Volunteers	Other Stakeholders	Contractor	Non-personal	Facilities	Education	Personal	Community Outreach	Research and Training
4.3.1.a Increase the number of campfire programs offered during the busy camping season.		2	2	X	X	X									X		
4.3.1.b Develop recreational activities that include an interpretive component.		2	2		X	X		X	X						X		
4.3.2 Use both new and traditional media to publicize programs																	
4.3.2.a Write press releases and create events on social media for key programs.		2	1	X	X			X								X	
4.3.2.b Ensure park bulletin boards and other locations are updated regularly with programming schedules.		1	1		X											X	
4.3.2.c Build relationships with local print, radio, and television news media.	\$	3	1		X			X								X	
4.3.2.d Build relationships with community groups.	\$	2	1	X	X											X	
4.3.3 Provide specialized programming																	

Goals, Objectives, Strategies, and Tasks	Budget and Schedule			Participants								Project Type					
	Cost Estimate	Priority	Phase	Management	Interp Staff	Other Staff	HQ/Service Center	Co-operating Association	Docents/Volunteers	Other Stakeholders	Contractor	Non-personal	Facilities	Education	Personal	Community Outreach	Research and Training
4.3.3.a Identify groups or organizations that would be interested in specific activities at Morro Bay SP.	\$	2	2		X					X						X	
4.3.3.b Develop programs that appeal to target groups, e.g. children's programs, Spanish language programs, etc.	\$-\$\$	2	2		X				X						X		
<b>5. Engage Local Community and Stakeholders</b>																	
<b>5.1 Offer programs with partners</b>																	
<i>5.1.1 Maintain existing and develop new partnerships</i>																	
5.1.1.a Identify potential partners among public and private entities with similar or complementary missions.	\$	2	2	X	X					X						X	
5.1.1.b Develop partnership agreements or MOUs including an understanding of roles and responsibilities.	\$	2	2	X						X						X	

Goals, Objectives, Strategies, and Tasks	Budget and Schedule			Participants								Project Type					
	Cost Estimate	Priority	Phase	Management	Interp Staff	Other Staff	HQ/Service Center	Co-operating Association	Docents/Volunteers	Other Stakeholders	Contractor	Non-personal	Facilities	Education	Personal	Community Outreach	Research and Training
5.1.1.c Meet on at least a biannual basis to maintain relationship and plan programming.	\$	2	2	X	X					X						X	
5.1.2 Provide venue for other programming																	
5.1.2.a Identify potential speakers from government, educational, and non-profit institutions who have complementary missions to DPR and MBSP.	\$	2	2	X	X					X						X	
5.1.2.b Promote MBSP campfire center and museum auditorium as location for programs.	\$	2	2		X					X					X		
5.1.2.c Collaborate to advertise programs.	\$	2	2		X					X						X	
<b>5.2 Greater use by educators</b>																	
5.2.1 Ensure field trips are affordable and relevant.																	

Goals, Objectives, Strategies, and Tasks	Budget and Schedule			Participants								Project Type					
	Cost Estimate	Priority	Phase	Management	Interp Staff	Other Staff	HQ/Service Center	Co-operating Association	Docents/Volunteers	Other Stakeholders	Contractor	Non-personal	Facilities	Education	Personal	Community Outreach	Research and Training
5.2.1.a Continue to work with CCSPA to provide bussing grants for Title One schools.	\$	1	1	X	X			X						X			
5.2.1.b Offer fee waivers for Title One schools.	\$	1	1	X										X			
5.2.1.c Align field trip programs with standards.	\$\$	1	1		X		X				X			X			
5.2.1.d Develop and provide specialized training for school group Docents/ Volunteers that blends best practices in interpretation with teaching standards based curriculum.	\$	1	1		X					X				X			X
<b>5.2.2 Meet teacher's needs</b>																	
5.2.2.a Stay abreast of changes in state standards.	\$	2	1		X												X
5.2.2.b Update programs within one year of the adoption of new state standards.	\$\$	2	1		X						X					X	



Goals, Objectives, Strategies, and Tasks	Budget and Schedule			Participants								Project Type					
	Cost Estimate	Priority	Phase	Management	Interp Staff	Other Staff	HQ/Service Center	Co-operating Association	Docents/Volunteers	Other Stakeholders	Contractor	Non-personal	Facilities	Education	Personal	Community Outreach	Research and Training
5.2.2.c Review educational curricula every 2-3 years to ensure it includes up-to-date information and meets current standards.	\$	2	1	X	X					X				X			
5.2.2.d Solicit feedback from teachers when developing curriculum and after it has been developed.	\$	1	1		X					X	X			X			
5.2.2.e Develop and provide free materials that teachers can use in their classrooms.	\$	2	1		X									X			
<i>5.2.3 Increase school program promotion</i>																	
5.2.3.a Each fall, send a letter informing all SLOCUSD teachers and teachers who have visited Morro Bay in the past about the programs and any changes that may have occurred.	\$	2	1		X											X	

Goals, Objectives, Strategies, and Tasks	Budget and Schedule			Participants								Project Type					
	Cost Estimate	Priority	Phase	Management	Interp Staff	Other Staff	HQ/Service Center	Co-operating Association	Docents/Volunteers	Other Stakeholders	Contractor	Non-personal	Facilities	Education	Personal	Community Outreach	Research and Training
5.2.3.b Attend educator conferences to share information about park school programs.	\$	2	1	X	X											X	
<b>5.3 Collaborate with Northern Chumash and Salinan tribes</b>																	
<i>5.3.1 Strengthen relationships</i>																	
5.3.1.a Meet with each tribe to identify topics of shared interest to interpret.	\$	1	1	X	X	X				X						X	
5.3.1.b Prioritize projects on which to collaborate.	\$	1	1	X	x	X										X	
5.3.1.c Hold regular meetings, even when not actively collaborating on a project.	\$	1	1	X	X	X				X						X	
<i>5.3.2 Provide opportunities for first person Native American interpretation</i>																	

Goals, Objectives, Strategies, and Tasks	Budget and Schedule		Participants								Project Type						
	Cost Estimate	Priority	Phase	Management	Interp Staff	Other Staff	HQ/Service Center	Co-operating Association	Docents/Volunteers	Other Stakeholders	Contractor	Non-personal	Facilities	Education	Personal	Community Outreach	Research and Training
5.3.2.a Collaborate to host program(s) or special events through which the Salinan and Northern Chumash tribes can demonstrate traditional cultural activities and interpret their stories.	\$	2	1	X	X	X				X					X		
5.3.2.b Provide multiple opportunities in new visitor center exhibits for the Northern Chumash and Salinan people to present their stories, culture, and history in the first person/ Native voice.	\$	1	2	X	X	X	X				X				X		
5.3.2.c Collaborate with designated tribal representatives on other interpretation that addresses indigenous culture or history.	\$	1	1	X	X	X						X					

Goals, Objectives, Strategies, and Tasks	Budget and Schedule			Participants								Project Type					
	Cost Estimate	Priority	Phase	Management	Interp Staff	Other Staff	HQ/Service Center	Co-operating Association	Docents/Volunteers	Other Stakeholders	Contractor	Non-personal	Facilities	Education	Personal	Community Outreach	Research and Training
<b>6. Enrich recreation</b>																	
<b>6.1 Recreational programs will include interpretation</b>																	
<i>6.1.1 Develop interpretive recreational programs</i>																	
6.1.1.a Develop and offer interpretive walks and hikes.	\$	1	1		X			X	X						X		
6.1.1.b Develop and offer interpretive kayak programs.	\$\$	1	2		X			X	X						X		
6.1.1.c Survey visitors to determine what additional interpretive recreational activities they would attend.	\$\$	1	2		X					X							X
<i>6.1.2 Provide self-guided interpretation at popular recreational sites.</i>																	
6.1.2.a Develop and provide non-personal media such as trailhead and wayside panels, self-guided brochures, etc.	\$\$\$	1	1	X	X						X						

Goals, Objectives, Strategies, and Tasks	Budget and Schedule			Participants								Project Type					
	Cost Estimate	Priority	Phase	Management	Interp Staff	Other Staff	HQ/Service Center	Co-operating Association	Docents/Volunteers	Other Stakeholders	Contractor	Non-personal	Facilities	Education	Personal	Community Outreach	Research and Training
6.1.2.b Develop mobile-friendly electronic media that can be accessed at home and on-site.	\$-\$\$	2	1	X	X						X	X					
<b>6.2 More visitors will participate in programs</b>																	
<i>6.2.1 Develop programs specifically targeted at youth</i>																	
6.1.2.a Identify schools – K-University level – that have outdoor clubs, nature clubs, scout troops, etc., and promote programs to these groups.	\$	1	1		X												X
6.1.2.b Partner with afterschool programs and summer camps to offer interpretive/recreation programs	\$	2	2	X	X			X	X	X					X		
<i>6.2.2 Offer variety of interpretive recreational programs</i>																	

<b>Goals, Objectives, Strategies, and Tasks</b>	Budget and Schedule			Participants								Project Type					
	Cost Estimate	Priority	Phase	Management	Interp Staff	Other Staff	HQ/Service Center	Co-operating Association	Docents/Volunteers	Other Stakeholders	Contractor	Non-personal	Facilities	Education	Personal	Community Outreach	Research and Training
6.2.2.a Develop programs designed for visitors with disabilities.	\$	1	1		X				X	X					X		
6.2.2.b. Promote programs to target audiences. Include information re: difficulty level, time commitment, and skills or knowledge to be acquired, accommodations, etc.	\$	1	1		X										X		

## 6.3 Interpretation Project and Program Proposals

Proposals in this category include two-dimensional, tangible products such as interpretive and orientation panels, printable maps, or directional signage. Given the increasing popularity of electronic media, some of these may eventually become available online, in addition to or in lieu of being physically available at the park.

### 6.3.1 Non-Personal Media

#### 6.3.1.1 Proposal One: Morro Rock Interpretive Panels and Park Sign

*Purpose:*

Morro Rock is one of the primary destinations for visitors to Morro Bay. The high volume of visitor traffic makes this an ideal location to introduce the park to people and to provide resource protection messaging.

Providing additional interpretation about topics that interest people, and redoing the regulatory signage to make the site more welcoming, would enhance the visitor experience. It can also help create a positive impression of California State Parks for the thousands of people who visit Morro Bay each year.

*Scope:*

Research, write, design, fabricate, and install new interpretive panels, a park sign, and new regulatory signage.

Based on available space and funding, this project should include four to six interpretive panels.

Interpretive panel locations and styles should be selected so that panels are easily visible to people approaching the rock but do not impinge on the view (*figure 23*). Materials should be resistant

to graffiti and salt spray and easy to clean given the number of birds that frequent the rock.



**Figure 23.** Morro Rock with low-profile panels concept

Replace the small, outdated, hard-to-see park sign with one that is visible and clearly identifies Morro Rock as a California State Park (*figure 24*). Due to land ownership, installation of this sign may require an easement or other agreement with the City of Morro Bay who owns the road, parking lot, and other property surrounding the rock.



**Figure 24.** Park Entrance sign concept for Morro Rock

Replace some or all regulatory signage with interpretive panels or new, regulatory signs with positive instead of negative messaging e.g. “please observe all wildlife from paved paths.”

*Tasks Met:*

2.2.1.f Develop and install interpretive panels that identify resources to protect and how people can protect them.

2.2.2.b Create panels with positive messages that encourage people how to act in lieu of, or along with, more traditional “do not do this” messages.

3.1.1.c Develop at least one interpretive panel about estuaries at each site with view of or access to the estuary.

3.2.1.b Develop and install at least one interpretive panel about T&E species at each location that is habitat for an endangered species.

3.2.2.c Develop panels that interpret endangered species success stories and the roles of Morro Bay State Park, scientists, and citizen at locations integral to the story (e.g. Morro Rock).

4.1.3.c Install park map at trailheads and high-visitation areas .

4.1.3.e Identify major visitor access points and determine if they should have State Park Sign (signage program ca. 2014) or other, smaller marker.

4.1.3.g Where signage may require placement on non-DPR property, work with CalTrans, San Luis Obispo County, and City of Morro Bay as necessary to install improved and new directional and identification signage.

4.1.4.b Use design elements consistently on physical interpretive media throughout the park (e.g. panels, exhibits, maps, etc.)

6.1.2.a Develop and provide non-personal media such as trailhead and wayside panels, self-guided brochures, etc.

### **6.3.1.2 Proposal Two: Park Core Panels**

*Purpose:*

The park core (*see figure 2, p. 2*) is the second most highly visited part of Morro Bay SP. While there are numerous interpretive panels found throughout the core, many do not meet current accessibility standards. They also do not support the key themes identified in this plan, nor do they present a consistent look.

Replacing existing panels, and adding new ones at well-visited areas, will create a comprehensive interpretive experience for the visitors who come to this part of the park. This project would also ensure that all panels in this highly visible and well-visited area meet current DPR Accessibility standards.

*Scope:*

Research, write, design, fabricate, and install interpretive and/or wayfinding panels at the following locations: Black Hill, campground, heron rookery, marina, and along the Marina-Peninsula Trail.

This proposal, possibly more than any other, has the potential to be broken into multiple, small projects and implemented over time. Certain locations are of higher priority and are arranged in order from high to low.

#### **6.3.1.2.A Peninsula-Marina Trail Panels**

*Purpose:*

In 2012, the California State Parks Accessibility Unit built an accessible trail that allows visitors to walk through the salt marsh. It not only has a slope and surface that make it accessible to strollers and wheelchairs, but its length and limited



slope also make it an excellent short hike for people who cannot walk long distances due to physical or time limitations. With views of Morro Rock, the salt marsh, and the marina, this trail offers excellent opportunities for interpretation of Morro Bay’s natural and cultural history. This is an excellent location to incorporate tactile or other sensory elements with the panels to expand accessibility to visitors with impairments other than mobility.

*Scope:*

Research, write, design, fabricate, and install one trailhead panel and three interpretive panels along the trail.

*Tasks Met:*

2.2.1.f Develop and install interpretive panels that identify resources to protect and how people can protect them.

3.1.1.c Develop at least one interpretive panel about estuaries at each site with view of or access to the estuary.

4.1.3.c Install park map at trailheads and high-visitation areas .

4.1.4.b Use design elements consistently on physical interpretive media throughout the park (e.g. panels, exhibits, maps, etc.)

6.1.2.a Develop and provide non-personal media such as trailhead and wayside panels, self-guided brochures, etc.

**6.3.1.2.B Campground Panels**

*Purpose:*

The Morro Bay SP campground has over 130 campsites and is full or nearly full throughout much of the summer. It is also popular in the off-season. While there are currently panels in the campground, they are an assortment of different styles, designed by at least three different designers at three different periods. Panels

are both of the low-profile and upright variety. Several of the upright panels are in shelters that are underused and have bare plywood showing through them. (figure 25).



**Figure 25.** partially empty panel shelter

Designing and installing new interpretive panels would reach thousands of visitors, enhancing their stay, imparting critical resource protection messages, and promoting a positive image of Morro Bay SP.

*Scope:*

Research, write, design, fabricate, and install new interpretive panels and panel shelters in the campground. This project should include approximately six different panel designs, as some panels could be installed in multiple campground loops. At the time of the project, the condition and accessibility of the panel shelters should be assessed to determine if they should be replaced as well or simply repurposed.

*Tasks Met:*

2.2.1.f Develop and install interpretive panels that identify resources to protect and how people can protect them.

4.1.3.c Install park map at trailheads and high-visitation areas .

4.1.4.b Use design elements consistently on physical interpretive media throughout the park (e.g. panels, exhibits, maps, etc.)

6.1.2.a Develop and provide non-personal media such as trailhead and wayside panels, self-guided brochures, etc.

**6.3.1.2.C Black Hill (Estuary Overlook) Panels**

*Purpose:*

The parking lot at the Black Hill trailhead provides one of the best, and most accessible, views of the Morro Bay estuary in its entirety. Developing and installing interpretive panels at this parking area for Black Hill (*figure 26*) would allow for effective interpretation of multiple parts of the estuarine system including the salt marsh, bay, and ocean. The trail to the summit is steep and rocky, but from it, you can look down on not only the estuary, but also the larger watershed and the chain of morros stretching to the east. One or more panels at this location could interpret the watershed.

Black Hill is not well known and, even for those who do know of it, it can be a challenge to find, due to the small and faded directional signage in the park. Improved directional signage is a critical component of this project so that the new panels and excellent views do not go unseen by visitors.

*Scope:*

Research, write, design, fabricate, and install interpretive panels and an

orientation panel at the Black Hill overlook and trailhead; improve directional signage on the park road so that visitors can more easily find the site; and examine the feasibility of installing panels at the summit of Black Hill. If feasible, design, fabricate, and install at least one interpretive panel at the summit.

Note: With its emphasis on the estuary and watershed, this project has the potential to be developed in cooperation with the Morro Bay National Estuary program.



**Figure 26.** Black Hill panel concept

*Tasks Met:*

2.2.1.f Develop and install interpretive panels that identify resources to protect and how people can protect them.

4.1.3.c Install park map at trailheads and high-visitation areas .

4.1.4.b Use design elements consistently on physical interpretive media throughout

the park (e.g. panels, exhibits, maps, etc.)

6.1.2.a Develop and provide non-personal media such as trailhead and wayside panels, self-guided brochures, etc.

3.1.1.c Develop at least one interpretive panel about estuaries at each site with view of or access to the estuary.

4.1.3.f Identify locations in park that need improved directional signage (e.g. road to Black Hill).

### 6.3.1.2.D Heron Rookery Panels

*Purpose:*

The Heron Rookery is a popular destination for birders and an easy walk from the campground and Natural History Museum. The Heron Rookery contains an upright interpretive panel shelter with a fairly new interpretive panel installed on one side of it. The panel is well-designed and meets current interpretive and ADA standards (*figure 27*). The shelter, however, does not meet ADA standards.



**Figure 27.** Interpretive Panel and Park Information space

The second side of the shelter contains a collection of eggs, a bulletin board surrounded by photos, and general park information attached to the plywood backing (*figure 28*).



**Figure 28.** Heron Rookery panel shelter underutilized side

Developing a second panel, or installing a finished surface on which park information could be posted, would improve the aesthetics of the site. The site could also be improved by updating and replacing outdated regulatory signage regarding nesting, rookery etiquette, and regulations. Current signage is standard regulatory signs and is so worn that it appears that nobody is actively caring for the site. Replacing the signage with new, well-placed regulatory signage, containing positive messaging about permitted activities and proper recreational etiquette, would both enhance the visitor experience and send a message that this is an important site that the park is actively caring for.

*Scope:*

Research, write, design, fabricate, and install interpretive panel or design, fabricate, and install finished surface for placement on the underutilized side of the panel shelter. Replace panel shelter with one that meets ADA standards. Design, fabricate, and install new signs or mini-panels that interpret resource protection rules, regulations, and proper recreational etiquette.

*Tasks Met:*

2.2.1.f Develop and install interpretive panels that identify resources to protect and how people can protect them.

2.2.2.b Create panels with positive messages that encourage people how to act in lieu of, or along with, more traditional “do not do this” messages.

3.2.1.b Develop and install at least one interpretive panel about T&E species at each location that is habitat for an endangered species.

3.2.2.c Develop panels that interpret endangered species success stories and the roles of Morro Bay State Park, scientists, and citizen at locations integral to the story (e.g. Morro Rock).

4.1.4.b Use design elements consistently on physical interpretive media throughout the park (e.g. panels, exhibits, maps, etc.)

6.1.2.a Develop and provide non-personal media such as trailhead and wayside panels, self-guided brochures, etc.

### 6.3.1.2.E Marina Panels

#### *Purpose:*

The current panels at the Marina do not meet DPR branding guidelines nor accessibility standards. The panels contain a great deal of text in tiny font, making them difficult to read (*figures 29 and 30*). While these are not technically State Parks panels, they are within its boundaries, and thereby reflect on the park. At a minimum, the panels should be redone to meet accessibility standards and match the design guidelines of the other panels in Morro Bay SP.

#### *Scope:*

Collaborate with the concessionaire and/or the Morro Bay National Estuarine Preserve to research, write, design, fabricate, and install replacement panels for the two signs currently at the Marina.



Figure 29. Marina Sign



Figure 30. Marina Sign

#### *Tasks Met:*

2.2.1.f Develop and install interpretive panels that identify resources to protect and how people can protect them.

3.1.1.c Develop at least one interpretive panel about estuaries at each site with view of or access to the estuary.

4.1.4.b Use design elements consistently on physical interpretive media throughout the park (e.g. panels, exhibits, maps, etc.)

6.1.2.a Develop and provide non-personal media such as trailhead and wayside panels, self-guided brochures, etc.

### 6.3.1.3 Cerro Cabrillo Panels

*Purpose:*

Cerro Cabrillo offers a steep and challenging hike for those who wish to explore the uplands of the Morro Bay area. It also provides excellent views of the estuary and ocean (*figure 31*), and uplands (*figure 32*). The site is also home to several sensitive plant species, including increasingly rare native grasslands.



**Figure 31.** Morro Estuary from Cerro Cabrillo

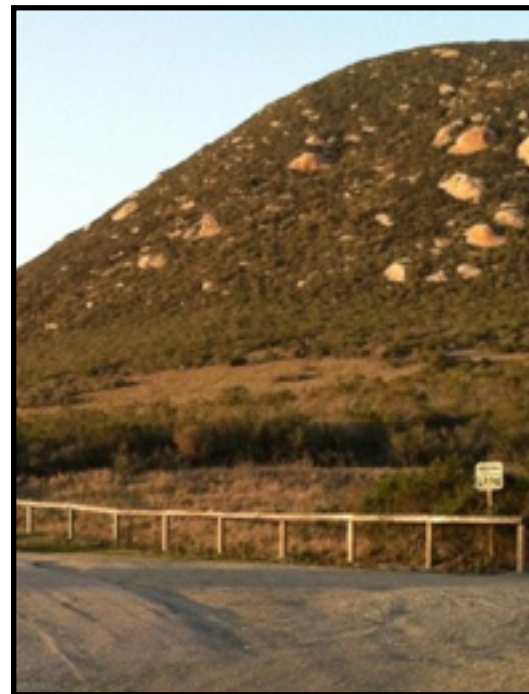


**Figure 32.** Looking inland from Cerro Cabrillo

Interpreting the sensitive resources and the views will aid both resource protection and enhance the visitor experience.

Cerro Cabrillo is marked by numerous volunteer trails. New trail signage and a new, easier to read trail map would improve visitor safety and resource protection by helping people stay on the main trails.

Visitors seeking hiking opportunities would also benefit from improved road signage. The current sign that identifies the trailhead and parking area is small and very hard to read, particularly when driving at or above the speed limit of 55 mph (*figure 33*). Better signage could help make this recreational resource available to more people.



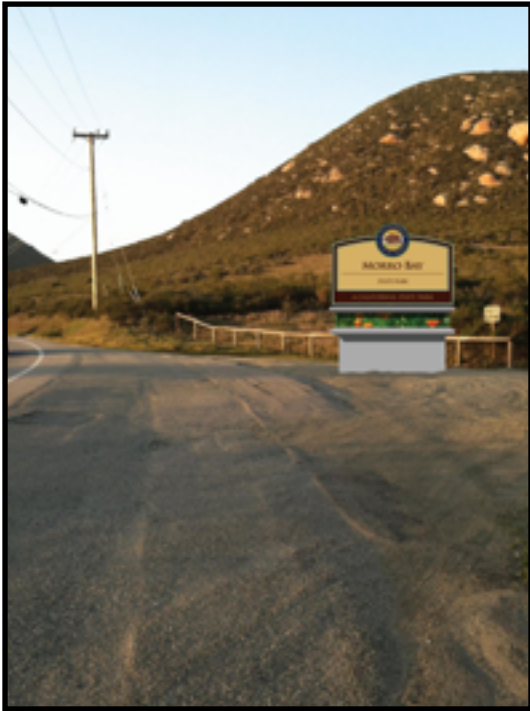
**Figure 33.** Cerro Cabrillo Day Use Sign

*Scope:*

Research, write, design, fabricate, and install new interpretive panels. Exact locations of interpretive panels, e.g., just in the parking lot or along the trail, to be determined at the time of the project. Potential topics include: native grasslands, estuary, morros, upland habitats and species.

Design a new trail map that clearly identifies the official trail. Whether this is available as a hard copy on-site or electronic version that can be downloaded or accessed via a QR code or similar electronic link to be determined at time of project.

Design, fabricate and install new wayfinding signage including a trailhead panel, directional markers along the trail, and a State Park sign along the highway (figure 34).



**Figure 34.** Cerro Cabrillo Park Entrance sign concept

Note: While it is often preferable to complete a project at a single site at one time, the need for good orientation and wayfinding at this location is greater than that of interpretive panels. Therefore, if necessary, this project could be completed in two phases, with the trailhead panel, park sign, trail markers, and improved map taking precedence over the interpretive panels. Installation of a State Park sign may require an easement from adjacent land-owner(s) as space may not be available on state park property.

### *Tasks Met*

2.2.1.f Develop and install interpretive panels that identify resources to protect and how people can protect them.

3.1.1.c Develop at least one interpretive panel about estuaries at each site with view of or access to the estuary.

4.1.3.c Install park map at trailheads and high-visitation areas.

4.1.3.e Identify major visitor access points and determine if they should have State Park Sign (signage program ca. 2014) or other, smaller marker.

4.1.3.f Identify locations in park that need improved directional signage (e.g. road to Black Hill).

4.1.3.g Where signage may require placement on non-DPR property, work with CalTrans, San Luis Obispo County, and City of Morro Bay as necessary to install improved and new directional and identification signage.

4.1.4.b Use design elements consistently on physical interpretive media throughout the park (e.g. panels, exhibits, maps, etc.)

6.1.2.a Develop and provide non-personal media such as trailhead and wayside panels, self-guided brochures, etc.

### **6.3.1.4 Powell Property Panels**

#### *Purpose:*

The Powell Property was acquired in the early 2000s to provide habitat for the morro shoulderband snail. Currently it is used by paintball enthusiasts and equestrians. While the exact use of this property and permissible public activities are still under discussion, at a minimum the site should be identified as part of Morro Bay SP and provide guidance on permissible activities, protected resources,

and recreational etiquette. If an official hiking trail is determined to be part of the site’s use, it should be designed with interpretation in mind.

*Scope:*

Research, write, design, fabricate, and install one upright or low-profile orientation panel that identifies the site as a state park property and lets visitors know what activities are, or are not, permitted. Pending future decisions regarding site uses, research, write, design, fabricate, and install 2-3 interpretive panels.

*Tasks Met*

2.2.1.f Develop and install interpretive panels that identify resources to protect and how people can protect them.

2.2.2.b Create panels with positive messages that encourage people how to act in lieu of, or along with, more traditional “do not do this” messages.

3.2.1.b Develop and install at least one interpretive panel about T&E species at each location that is habitat for an endangered species.

4.1.3.c Install park map at trailheads and high-visitation areas.

4.1.3.f Identify locations in park that need improved directional signage (e.g. road to Black Hill).

4.1.4.b Use design elements consistently on physical interpretive media throughout the park (e.g. panels, exhibits, maps, etc.)

6.1.2.a Develop and provide non-personal media such as trailhead and wayside panels, self-guided brochures, etc.

**6.3.2 Facilities and Infrastructure Improvements**

The proposals identified in this section involve construction more complex than panels. These include, but are not limited to, museum exhibits, wildlife viewing platforms, and campfire centers. The complexity of these projects will require a multi-year commitment of staff time, funds, and park and district support as well as contracting the services of specialists.

**6.3.2.1 Morro Rock Interpretive Hub**

*Purpose:*

Nearly every person who visits Morro Bay also visits Morro Rock. Developing this site into an interpretive hub for the Morro Bay area would allow thousands of people to receive a brief introduction to the region. This would not only enhance the visitor experience, but could also encourage them to extend their visit in the area and impart resource protection messaging.

As Morro Rock and the land immediately surrounding it managed and regulated by multiple agencies, including but not limited to California State Parks, California Department of Fish and Wildlife, and the City of Morro Bay, this project would require collaboration between multiple agencies. In addition to these landowners and regulatory agencies, The Morro Bay National Estuary Program, Salinan and Northern Chumash Tribes, as well as non-profit groups such as the Audubon Society have strong interests in this site, too.

*Scope:*

Develop partnership agreements to design, fabricate, and install new interpretive panels, improved signage, a viewing platform and/or other visitor amenities.

2.2.1.f Develop and install interpretive panels that identify resources to protect and how people can protect them.

2.2.2.b Develop positive messages that encourage people how to act in lieu of, or along with, more traditional “do not do this” messages.

3.1.1.c Develop at least one interpretive panel about estuaries at each site with view of or access to the estuary.

3.2.1.b Develop and install at least one interpretive panel about T&E species at each location that is habitat for an endangered species.

3.2.2.c Develop panels that interpret endangered species success stories and the roles of Morro Bay State Park, scientists, and citizen at locations integral to the story (e.g. Morro Rock).

4.1.3.c Install park map at trailheads and high-visitation areas.

4.1.3.e Where signage may require placement on non-DPR property, work with CalTrans, San Luis Obispo County, and City of Morro Bay as necessary to install improved and new directional and identification signage.

4.1.4.b Use design elements consistently on physical interpretive media throughout the park (e.g. panels, exhibits, maps, etc.)

5.1.1.a Identify potential partners among public and private entities with similar or complementary missions.

5.1.2.b Develop partnership agreements or MOUs including an understanding of roles and responsibilities.

5.3.2.c Collaborate with designated tribal representatives on interpretation that addresses indigenous culture or history.

### **6.3.2.2 Museum Exhibit Renovation**

#### *Purpose:*

The Morro Bay SP Museum of Natural History will need new exhibits during the life of this plan. The first step in developing new exhibits is to develop an Interpretation Project Plan (IPP). This plan can be used both as a fundraising tool, and to help draft a Request for Proposal (RFP) for an exhibit design firm. The exhibit design firm would, working from the plan and with input from DPR staff and Morro Bay SP stakeholders, design, fabricate, and install new exhibits. Tenant improvements may also be necessary to the building. While the entire project, from planning to installation could be funded at once, this project lends itself very well to be funded and completed in two phases and is described below thusly.

#### *Scope:*

Write an RFP to hire a qualified exhibit design firm to use the DPR Interpretation Project Plan template to develop an interpretation project plan. Upon completion of the plan, and once funds are secured, hire a qualified and experienced exhibit design firm will design, fabricate, and install new exhibits that are durable, interactive, and support the themes, goals and objectives outlined in the IMP. Project may include minor structural modifications to the building, e.g. removing window coverings.

1.3.2.b Develop capital campaigns e.g. for new visitor center exhibits and track progress online

3.1.1.b Develop new museum exhibits that interpret the importance of estuaries with specific focus on the Morro Bay estuary

3.2.1.a Develop new museum exhibits that interpret the T&E species of the Morro Bay area.

3.2.2.b Develop museum exhibits that interpret endangered species success stories and the roles of Morro Bay State



Park, scientists, and citizen activists in making them happen.

3.3.2.a Recruit at least one climate change specialist to review interpretive materials addressing climate change.

3.4.2.e Develop easily updated interpretive media to reflect advances in climate change science (i.e. not panels or permanent exhibits).

4.1.2.c Develop new museum exhibits that interpret the various habitats and recreational opportunities in the park.

4.1.4.b Use design elements consistently on physical interpretive media throughout the park (e.g. panels, exhibits, maps, etc.)

4.2.2.c Provide audio translations in museum exhibit audio components for high-priority languages.

4.2.2.d Provide written translations in high-priority languages for museum exhibits, interpretive panels, and other print media.

5.3.2.b Provide multiple opportunities in new visitor center exhibits for the Northern Chumash and Salinan people to present their stories, culture, and history in the first person/Native voice.

5.3.2.c Collaborate with designated tribal representatives on interpretation that addresses indigenous culture or history.

### 6.3.3 Educational Services

Educational services differ from interpretive programs and projects in that they are designed specifically for formal educational groups, most often schools. The materials are developed specifically for use by teachers, although they could be made available for other interested parties. Content in these services should reflect both the park themes and state

content standards.

#### 6.3.3.1 Background Materials

*Purpose:*

Teachers indicated a high level of interest in the park providing materials that they could use to supplement lessons. These materials will not only help teachers better prepare their students for field trips to Morro Bay SP, but can also be used to help develop lessons about estuary ecology and other related topics in their classrooms, even if a field trip is not possible.

*Scope:*

Develop background materials that teachers can download from the Morro Bay SP website and use in their classrooms, either as a prelude or follow-up to a visit, or as supplemental classroom materials. Materials could include, but are not limited to, fact sheets about the park, the estuary, links to other resources, low-resolution photos for use in classroom (check DPR intellectual property rights), etc.

*Tasks Met*

1.1.2.c Develop content materials for teachers to use independent of or to prepare for field trips.

1.1.2.f Translate educational materials into Spanish

5.2.2.e Develop and provide free materials that teachers can use in their classrooms.

#### 6.3.3.2 Update Existing Field Trip Curricula

*Purpose:*

Teachers report that it is easier to take field trips when they can justify the experience by showing that it meets state content standards. Many of the

teachers who responded to the IMP survey indicated that they don't come to Morro Bay SP because the trips are not tied to the state standards. This project would review and update existing field trips to ensure that they address content standards and identify what standards each program meets.

As California has recently adopted the Common Core State Standards and will soon be adopting the Next Generation Science Standards, this is an opportune time to revise the curriculum.

*Scope:*

Develop field trip programs with leaders' guides. Align programs to the Common Core State Standards, Next Generation Science Standards, State of California Social Science Standards, and EEI Environmental Principles and Concepts, as relevant to the subject matter. Develop a summary that describes each program and identifies the standards each meets.

1.1.2.b Align on-site field trips with current standards

5.2.2.a Stay abreast of changes in state standards.

5.2.2.b Update programs within one year of the adoption of new state standards.

5.2.2.c Review educational curricula every 2-3 years to ensure it includes up-to-date information and meets current standards.

5.2.2.d Solicit feedback from teachers when developing curriculum and after it has been developed.

### **6.3.3.3 PORTS Estuary Program**

*Purpose:*

PORTS – Parks Online Resources For Teachers and Students – is a well-regarded, free distance learning,

interactive videoconferencing program for K-12 schools in California. At this time, there are a number of natural and cultural history PORTS programs, but none that teach about estuaries. As Morro Bay SP is home to one of the healthiest estuaries in the state of California, it would be an excellent location to develop an estuarine PORTS program – staff and funds permitting.

*Scope:*

Working with the DPR Interpretation and Education Division, develop a PORTS program about estuaries. The development and implementation of a PORTS program at Morro Bay SP will require two significant commitments, the first being the initial outlay of time and funds to develop a curriculum and purchase the equipment. The second commitment is ongoing, hiring a dedicated staff person – Park Interpretive Specialist or Interpreter I – to run the program.

1.1.2.e Develop and offer distance learning programs, i.e. PORTs.

### **6.3.4 Frontline/Personal Interpretation**

Personal interpretation, an interpretive experience delivered by a live person, adds life to a site. It covers a spectrum of interactions, from brief, impromptu interactions to carefully-planned programs that are given on a regular basis sometimes over numerous years.

Results from the visitor survey found that while few visitors had experienced personal interpretation at Morro Bay State Park, those who had rated it highly. It is recommended that the park maintain its existing personal interpretive services, such as the Adventures with Nature program, while expanding its programs in the following way.

**6.3.4.1 Roving Interpretation at Morro Rock**

*Purpose:*

Stationing an interpreter near Morro Rock would allow numerous people to interact with a park representative. The roving interpreter, whether employee or docent, should be clearly identified as a state parks representative, e.g. by wearing a uniform or Morro Bay SP docent vest or jacket. This person would not only enhance the visitor experience, but also project a positive image of the park and improve resource protection.

*Scope:*

Recruit and train docents to serve as roving interpreters. Schedule a roving interpreter at Morro Rock during the peak months and on weekends during the shoulder season, holidays, and special events and provide with a backpack/kit including items such as binoculars, field guides, etc.

Note: Assigning a staff person to this role would require creating a new position, converting an existing position to an Interpreter I or Park Interpretive Specialist. In the short- term, roving interpretation might be best accomplished by recruiting docents and providing them with training in roving techniques.

1.1.1.b Develop new programs

2.2.1.c Include at least one relevant resource protection message (RPM) in each interpretive program.

2.2.2.c Include ERB messages with recreational and interpretive programs.

3.1.2a Develop concise, memorable messages that build off of Task 3.1.1.a and provide to all volunteers and staff who may have contact with visitors.

4.1.1.c Station roving interpreters – staff or volunteer – at high visitation areas.

**6.3.4.2 Guided Walks**

*Purpose:*

Guided hikes are currently offered through the Adventures With Nature program. Most last around 2 hours. Per the visitor survey, visitors feel that guided walks of less than one hour would be the greatest improvement to that interpretive experience at Morro Bay SP.

These short, interpretive walks would allow more visitors – particularly families with young children and visitors with limited time - to more fully experience Morro Bay SP.

*Scope:*

Recruit and train docents to develop and lead guided walks (lasting 30 minutes to no more than one hour) that interpret the themes identified in this plan. Locations at which to offer the walks include, but are not limited to:

- Morro Rock
- Peninsula-Marina Trail
- Black Hill

*Tasks Met*

1.1.1.b Develop new programs

2.2.1.c Include at least one relevant resource protection message (RPM) in each interpretive program.

2.2.2.c Include ERB messages with recreational and interpretive programs.

3.1.1.d Offer walks and talks that interpret the importance of estuaries.

3.1.2a Develop concise, memorable messages that build off of Task 3.1.1.a and

provide to all volunteers and staff who may have contact with visitors.

3.2.1.c Offer walks and talks that interpret T&E species of Morro Bay.

4.1.1.b Offer guided hikes and walks of varying lengths and difficulty at Black Hill, the Quarry Trail, Peninsular-Marina Trail, and Morro Rock.

6.1.1.a Develop and offer interpretive walks and hikes of varying difficulties and time commitments.

### **6.3.4.3 Interpretive Kayak Tour Development**

#### *Purpose:*

In the visitor survey, interpretive kayak tours were the second most popular choice for improving the interpretive experience at the park. Interpreting the estuary from the water would allow visitors to gain a perspective not currently available to them. A value-added program such as this also offers the opportunity to develop a source of revenue generation for the park. The program should be developed with the goal of cover the cost of a Park Interpretive Specialist or Park Aid who could also perform additional interpretive duties.

At this time, the park does not wish to invest in the purchase of kayaks and other materials. In order to implement this program, it should look into collaborating with local kayak shops. The shop could levy an additional charge (e.g. \$10.00/person) that would pay for a park-interpreter to accompany the tour.

#### *Scope:*

Identify a commercial or non-profit partner and develop a partnership agreement to provide interpretive kayak tours.

#### *Tasks Met*

1.1.1.b Develop new programs

3.1.1.d Offer walks and talks that interpret the importance of estuaries.

3.2.1.c Offer walks and talks that interpret T&E species of Morro Bay.

4.1.6.b Identify potential partners among other public agencies, nonprofit organizations, cultural groups, and business, particularly ecotourism and outdoor recreation outfitters, and coordinate new interpretive or interpretive/recreational programming.

4.1.6.c Develop interpretive programs with new and existing partners to share resources and increase visitor access to park.

4.3.1.b Develop recreational activities that include an interpretive component.

5.1.1.a Identify potential partners among public and private entities with similar or complementary missions.

5.1.1.b Develop partnership agreements or MOUs including an understanding of roles and responsibilities.

6.1.1.b Develop and offer interpretive kayak programs.

### **6.3.5 Community Outreach**

While Morro Bay SP already promotes its programs and has strong ties to the community, increasing its marketing and outreach, particularly to underserved populations, will make its interpretive services stronger.

### 6.3.5.1 Visual Brand Development

*Purpose:*

Given the expansive nature of Morro Bay SP and its many access points, visitors may not always realize that they are at a park site. The development of a visual brand – a set of fonts, color pallet, park map, etc., - and its consistent use would help visitors know when they are at Morro Bay SP.

*Scope:*

Hire a design specialist to work collaboratively with park staff and key stakeholders to develop design guidelines to be used with panels, print materials, museum exhibits, and other interpretive, educational, and outreach media.

*Tasks Met*

4.1.3.a Develop sign standards to create a uniform look and feel and ensure that interpretive, wayfinding, and identification signs are consistent throughout the various park locations.

4.1.3.b Develop park map appropriate for use on panels.

4.1.4.a Develop a uniform set of design principals and elements.

4.1.4.b Use design elements consistently on physical interpretive media throughout the park (e.g. panels, exhibits, maps, etc.)

### 6.3.5.2 Enhance and Expand Marketing

*Purpose:*

In the visitor surveys, people spoke highly of the programs they attended, but few people had actually attended a program. Increasing program marketing could help raise attendance at interpretive programs and diversity program audiences. A professionally developed marketing plan would be the most effective means to determine the best combination of media

to reach target audiences.

*Scope:*

While some activities can be undertaken by the park and CCSPA on their own, marking will be more effective and cost efficient if a contractor is hired to develop a marketing plan. Produce in collaboration with park and CCSPA and identify goals, target audiences (existing and potential visitors, local media, community influencers), messages, and techniques for marketing the park and its programs. Due to the rapidly changing nature of media, this plan should be revisited and potentially updated every five-seven years.

*Tasks Met*

1.1.3.a Develop a marketing plan that identifies key audiences and the most effective means for reaching them.

1.1.3.b Assign staff or volunteer to keep abreast of emerging new media platforms and make use of them.

1.1.3.c Develop and maintain relationships with new and traditional media sources.

4.1.2.b Develop user-friendly digital tools that identify key park locations, recreational opportunities, and interpretive destinations based on visitor interest.

4.1.5.b Identify key user groups (e.g. outdoor clubs) and conduct outreach to encourage visitation.

4.1.5.c Use social media (e.g. Facebook, Instagram) to highlight lesser-known park areas.

4.1.6.a Continue to work with CCSPA to offer interpretive programs per PRC 513.

4.2.1.a Identify and remove barriers to participation/park visitatio

- 4.2.1.b Identify media sources and influencers for priority groups, conduct outreach, and build relationships
- 4.2.1.c Develop a targeted program to recruit volunteers from priority groups.
- 4.3.2.a Write press releases and create events on social media for key programs.
- 4.3.2.b Ensure park bulletin boards and other locations are updated regularly with programming schedules.
- 4.3.2.c Build relationships with local print, radio, and television news media.
- 4.3.2.d Build relationships with community groups.
- 4.3.3.a Identify groups or organizations that would be interested in specific activities at Morro Bay SP.
- 5.1.2.c Collaborate to advertise programs.
- 5.2.3.b Attend educator conferences to share information about park school programs.
- 5.2.3.a Each fall, send a letter informing all SLOCUSD teachers and teachers who have visited Morro Bay in the past about the programs and any changes that may have occurred.
- 6.1.2.a Identify schools – K-University level – that have outdoor clubs, nature clubs, scout troops, etc., and promote programs to these groups.
- 6.2.2.b. Promote programs to target audiences. Include information re: difficulty level, time commitment, and skills or knowledge to be acquired, accommodations, etc.

**6.3.5.3 Non-English Language Interpretation**

*Purpose:*

California is home to a diverse population that speaks over fifty different languages. Spanish is by far the most common, with nearly 1/3 of Californians speaking Spanish in the home.<sup>1</sup> This diversity is also represented in the school age population; nineteen percent of students in California’s schools are English Language Learners who speak Spanish<sup>2</sup> and 50% of the teachers who responded to the survey indicated that their students would benefit from oral instruction in Spanish. Providing Spanish language interpretation and educational materials would help reach this important demographic.

*Scope:*

Identify priority programmatic areas that would benefit from Spanish and other language translations and

1.1.2.f Translate educational materials into Spanish

1.1.2g Recruit bilingual (Spanish-English) docents/ volunteers to provide Spanish language school programs.

4.2.2.a Identify high-priority languages to reach non-English speaking visitors.

4.2.2.b Recruit bilingual docents/ volunteers.

4.2.2.c Provide audio translations in museum exhibit audio components for high-priority languages.

4.2.2.d Provide written translations in high-priority languages for museum exhibits, interpretive panels, and other print media.

**6.3.5.4 Intro to Camping Program**

*Purpose:*

Given its proximity to both the Central

Valley and Los Angeles, Morro Bay State Park would be an excellent site at which to introduce underserved communities to camping. The program envisioned by the park would be similar to the existing FamCamp® program; the park would provide tents, materials, and campsites. It would differ in that it would be coordinated by park staff or volunteers and include interpretive and stewardship activities.

*Scope:*

Develop and implement an introduction to camping program at Morro Bay SP. Acquire funding to purchase materials. Train staff, volunteers, or camp hosts as leaders. Develop interpretive and/or educational services, e.g. guided hikes, programs, demonstrations, as part of the program.

*Tasks Met*

1.1.1.b Develop new programs

1.4.1.a Identify programs that need additional volunteer support and create position descriptions.

1.4.1.c Conduct outreach and recruit volunteers from under-represented communities.

2.2.2.c Include ERB messages with recreational and interpretive programs.

2.2.1.c Include at least one relevant resource protection message (RPM) in each interpretive program.

2.2.2.e Provide instruction and training to all volunteer and paid interpreters on how to model and interpret desired ERBs

4.2.1.a Identify and remove barriers to participation/park visitation.

4.2.1.c Develop a targeted program to recruit volunteers from priority groups.

4.2.1.d Develop programs to introduce non-park users to day-use activities and camping in MBSP.

4.3.3.a Identify groups or organizations that would be interested in specific activities at Morro Bay SP.

6.2.2.b. Promote programs to target audiences. Include information re: difficulty level, time commitment, and skills or knowledge to be acquired, accommodations, etc.

## *Endnotes*

1. <http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk> (accessed October 31, 2014).
2. <http://www.cde.ca.gov/ds/sd/cb/cefelfacts.asp> (accessed October 31, 2014).



# APPENDIX A: STAKEHOLDER MEETING NOTES

## Morro Bay State Park Interpretive Master Plan

### Stakeholder Meetings

Tuesday, November 8 and Wednesday, November 9, 2011

### Meeting Summary

#### **What people love about Morro Bay State Park**

People value a number of things about Morro Bay State Park. These can be classified into seven categories:

1. Natural
2. The wealth of activities and recreation opportunities
3. The Sense of Community that the park provides
4. Its beauty and scenic qualities
5. It is fun to visit
6. It has a rich cultural history, and
7. It is a place of preservation and protection

#### **The Purpose of Interpretation at Morro Bay State Park**

Interpretation is seeing as accomplishing a great deal at Morro Bay State Park. It should:

1. Educate visitors/increase their knowledge
  - a. Natural Resources Education
  - b. Cultural/Historical Education
2. Inspire/Promote/Encourage Resource Protection and Stewardship
3. Foster the Human/Natural World Relationship

4. Build Affective Ties
  - a. Inspire
  - b. Value
  - c. Create connections
  - d. Build Memories
  - e. Be fun
5. Offer Opportunities for Engagement
  - a. Recreation
  - b. Direct Experience
  - c. Exploration
  - d. Participate in conservation
  - e. Build ties to the community
  - f. Build support for the park
  - g. Improve health
6. Highlight park management activities and leadership
7. Assist with orientation and wayfinding
8. Reach youth

**Topics for interpretation:**

Meeting participants provided over 200 discrete ideas for topics that could be interpreted at Morro Bay State Park. The majority have been grouped into the following categories:

1. Animals:
  - a. Animals: Birds
  - b. Animals: Butterflies
  - c. Animals: Endangered Species
  - d. Animals: Fish

- e. Animals: Marine Mammals
- 2. Climate Change
- 3. Ecosystems
  - a. Ecosystems: Estuary
- 4. Fishing Heritage
- 5. Geology
- 6. History
- 7. Human Impacts
- 8. Marine Protected Areas
- 9. Native American People, Culture and History
- 10. Oceanography
- 11. Plants and Animals
- 12. Plants
- 13. Recreation
  - a. Recreation: Etiquette
  - b. Recreation: History
- 14. Watershed
- 15. Weather

## Morro Bay Interpretation Master Plan

### Stakeholder Meeting Two

#### Morro Bay State Park Museum of Natural History

May 15, 2012

**Attendees:** Robin Chase, California State Parks; Rouvaishyana, California State Parks; Rosalie Valvo, Morro Coast Audubon Society; Shanda Gibbs, Docent Committee; Bette Bardeen, Docent; Greg Castro, Salinan Tribal Council; Elanda Castro, Salinan Tribal Council; Matt Ward, Chumash Maritime Association; Fred Collins, Northern Chumash Tribal Council

The meeting began with an introduction of participants by their name and that of the agency or organization they were representing. Facilitator Kathy Schulz reviewed the agenda and provided an overview of the results of the visitor and teacher surveys. Following a short dinner break, the group embarked on the first of the two activities.

The input gathered through these two activities will be reviewed by park staff, including the sector and district superintendents, and where feasible and appropriate, incorporated into the final interpretive and action plans.

### **Group Task 1 - Brainstorming on goal achievement**

Working from ideas generated at the first stakeholder meeting, California State Parks staff generated six goals for interpretation at Morro Bay State Park. During this first activity, group members generated suggestions for 1) measurements to determine if goals are being achieved (objectives) and 2) methods for achieving them (strategies).

#### **Goal 1: Visitors will form connections with the Morro Bay estuary and its resources.**

##### **Objectives and Strategies**

- a. (Visitor generated) pollution in park and estuary pollution (e.g. trash) will decrease
- b. Visitors will become members of CCSPA
- c. Visitors will volunteer for projects such as beach clean-ups, native plant restoration, etc.
- d. Develop ways for people to maintain their connection to the park after people have returned home.
- e. Using renewable, cheap, easy and non-endangered resource, provide opportunities for people to make a craft that they can take home with them
- f. Provide physical connections for Native American culture, e.g. reconstructed village
- g. Provide opportunities for hands-on exploration not just in the museum, but outside in the park
- h. Provide programs about and sufficient containers for recycling and waste disposal to help visitors keep the estuary clean
- i. Interpret the intimate connections that have existed for indigenous people for thousands of years through storytelling festival, craft demos, etc.

#### **Goal 2: Visitors will become active stewards of Morro Bay SP and its resources.**

##### **Objectives and Strategies**

- a. Visitors will respect rules on gathering
- b. Ground squirrel bites will decrease
- c. Provide more personnel to patrol and educate the public
- d. Provide signage to educate the public about rules and regulations, for example steelhead fishing
- e. Design programs to be used in the schools
- f. Host events (symposiums, talk, etc.) with knowledgeable scientists of both contemporary society and indigenous society on environmental issues, concerns and solutions.
- g. Offer stewardship opportunities for high school volunteer/community service credit.
- h. Design signs that spell out rules affecting natural and cultural resources in the park and get them approved through staff review process.
- i. Tell stewardship success stories
- j. Offer adopt-a-tree, adopt-a-plant, or adopt-an-area program

**Goal 3: Visitors will learn about the Morro Bay estuary, its watershed, and the nearby coast.**

**Objectives and Strategies**

- a. People will be able to explain the interconnectedness of the land, plants, wildlife, and the people.
- b. Share the Native American stories of the estuary.
- c. Explain the role of the estuary as a nursery
- d. Make the museum exhibits more fun, more exploratory, less wordy
- e. Redo museum exhibits with a greater emphasis on the local area
- f. Offer guided hikes to the top of black hill to provide an overview of the whole watershed
- g. Develop interpretive panels at key sites
- h. Create story circles – multi-panels hubs of interpretive panels
- i. Create curriculum-based programs about the estuary

- j. Provide guided kayak tours of the estuary
- k. Provide guided tours near the estuary shore

**Goal 4: A visit to Morro Bay State Park will be seen as an integral part of a trip to Morro Bay and the greater San Luis Obispo Coast.**

**Objectives and Strategies**

- a. Tour buses will include the Natural History Museum on their itineraries
- b. Advertise park interpretive events and program on the web, through other agencies, and at schools and libraries.
- c. Create special events that are topically unique to bring in various visitor groups.
- d. The park will participate in community events.
- e. Park will offer short programs that take place outside park boundaries.

**Goal 5: Strengthen ties to the community by offering opportunities for collaboration, supporting educators, and engaging non-traditional park users.**

**Objectives and Strategies**

- a. More Spanish-speaking families from SLO county will visit the park
- b. Develop cross-boundary interpretive trails
- c. Increase the number of in-class presentations
- d. Collaborate on multi-agency special events
- e. Offer youth (high school) programs
- f. Reach out to college students e.g. research projects
- g. Collaborate with Chumash and Salinan tribes to develop a Native American village for living history interpretation.
- h. Participate in the California Coastal Clean-up
- i. Start service programs
- j. Partner with groups (e.g. Girl or Boy Scouts) and/or schools to do clean-up days and restoration projects.
- k. Cooperate with other organizations in providing space and marketing for

programs

- l. Develop graphic-based interpretive panels to reach non-English reading populations.
- m. Develop interpretive panels in Spanish
- n. Increase fam-camp opportunities
- o. Develop a partnership at various sites (e.g. with Los Osos Green Belt alliance at the Powell Property) to collaborate on interpretive programs.
- p. Hold service-oriented special events
- q. Provide space for Native American cultural events
- r. Invite other environmental interpretive groups to offer docent-like programs at the park

### **Goal 6: Enrich recreational opportunities at the park.**

#### **Objectives and Strategies**

- a. Native American guided tomol tours
- b. Native American guided hikes
- c. Partner with organizations or companies to provide recreational tours, guided hikes, kayak tours, bike tours, etc.
- d. Offer interpretive kayak tours
- e. Work with geocachers to develop interpretive caches
- f. Develop camping programs for inter-city youth
- g. Develop living history CCC
- h. Create universal look for signage throughout the park

#### **Group Task 2: Project brainstorming and prioritization**

The second group activity involved brainstorming suggestions for interpretive projects at a variety of sites throughout the park. Participants were then given 10 votes each. They were allowed to spread them among 10 different projects or concentrate them on a single project of their choosing. The top vote getters are identified by blue font on the table below.

<b>Park Site</b>	<b>Action</b>	<b>Stakeholder Meeting Votes</b>
<b>Morro Rock</b>		
	New interpretive panels at a better location	11
	Signage to identify as a state park	5
	Creation of a hub/welcome point (building or outside hub TBA)	4
	Signage/panels that orient people to other parts of the park	3
	Station a roving interpreter	4
	Hikes of less than one hour	1
<b>Museum</b>		
	Use for Native American gathering e.g. Mopatan	7
	Plan and develop new exhibits	4
	Expand lecture series	3
	Restore/return old exhibit(s) currently in West Sac	3
<b>Cerro Cabrillo</b>		
	Signage to identify as Morro Bay State Park	2
	Multi-panel structure at trailhead	2
	Panels re: rules and etiquette at trailhead	1
	Trail markers	1
	Road signage to identify trailhead and parking	0
	Wayside panels	0
<b>Black Hill</b>		



	Improve signage on road so that people can find it	2
<b>In park, exact sites to be determined</b>		
	Native American living village (see Wishtoyo web site)	5
	Host annual Native American conference	1
	Develop standard trailhead panel or panel element reminding people of rules (dogs, gathering, fishing) and etiquette (share the trail, etc.)	0
<b>Powell Property</b>		
	TBA	1
	Signage identifying as a state park	0
	Panel interpreting rules and regulations	0
	Panel interpreting significance as habitat for Morro Snail	0
<b>Other</b>		
	Develop publicity campaign for park	2
	Recruit Spanish-speaking docents for school programs	0
	Hire Spanish speaking PIS for school programs	0
<b>Youth Outreach</b>		
	Develop volunteer/ community service programs for high schoolers	5
	Offer paid internships to high schoolers	2
	Provide academic credit opportunities (e.g. Senior project, research project, etc.)	2

Estuary		
	Partner with Chumash (and kayak store owner or concessionaire?) to offer Chumash guided Tomol/kayak tours	9
	Park interpreter led interpretive kayak tours	0

## APPENDIX B: SURVEY CONCLUSIONS AND RECOMMENDATIONS

### CONCLUSIONS AND RECOMMENDATIONS

#### Who Visits Morro Bay State Park?

Most of those who visit Morro Bay State Park are repeat visitors, although about a third are on their first trip. Around a third come from San Luis Obispo County; most of the rest are from other parts of California. Visitors from other states represent somewhat more than one in ten visitors.

Visitor parties are most likely to contain two people, and these people tend to be members of the same family. About a third of parties contain children, whose ages tend to be at least six. Adult ages skew toward 45 and older. These data suggest that interpretive and educational activities should probably be targeted to children aged six and over and to adults who are middle-aged or older.

#### How Do Visitors Plan Their Trips?

Visitors who plan their trips using something other than experience are inclined to utilize Web-based resources. It would therefore seem appropriate to ensure that the new master plan address ways to maximize the usability and helpfulness of the Morro Bay State Park Web site as well as of the information about the Park on the State's Web site.

#### What Do Visitors Do in the Park?

Activities visitors are most likely to engage in include walking, hiking, sightseeing, and visiting the Museum. Key destinations

include Morro Rock, the marina (although this may mean the downtown marina), the walking and hiking trails, and the Museum. Accordingly, it would appear appropriate to emphasize these aspects of the Park in informational and promotional materials.

Ways in which visitors are most likely to engage with the Park are by interacting with staff and by looking at outdoor interpretive and educational signs. It would thus seem important to ensure that these resources are emphasized. Importantly, however, all of the ways in which visitors engage with the Park are viewed as being at least somewhat helpful, and most are seen as being closer to very helpful than to somewhat helpful. Clearly, the Park is already doing a good to excellent job of interacting with its visitors.

Relatively few visitors have participated in one of the Park's interpretive or educational programs, which suggests either that these programs need to be made more attractive or that they need more publicity. At the same time, however, there is considerable – although not exceptionally strong – interest in learning about new things on visits.

Interest is particularly noticeable for Morro Rock, marine life, and wildlife; sources of information that are particularly appealing include outdoor interpretive or educational signs, museum exhibits, talks by rangers, and Park brochures. These would therefore seem to be features that the new master plan should emphasize.

#### How Can the Park Improve?

When visitors were asked what two things they would like the Park to do to improve its interpretive and educational efforts, they were most likely to select the provision of guided walks of less than an hour, kayak tours, and outdoor interpretive and educational signs. The

one thing visitors said would improve their experience is more interpretive signs in the Park. Taken together, these improvements would appear to warrant particular consideration for the master plan.

It is also important to note in this regard that outdoor interpretive and educational signs feature prominently throughout this research. If the Park were to plan only one substantial improvement, this would probably be the most likely candidate.

### **What About the Teacher Survey?**

Because the response rate to the teacher survey is low, we would encourage the Park to view these survey results with considerable caution. If only 20 percent of those surveyed respond, that means we are not hearing from 80 percent – clearly the majority.

That having been said, the teacher survey results may be useful in guiding master plan development in combination with other information the Park has or when they are supported by with the visitor survey results. The following sections assume the Park will proceed accordingly.

### **How About Teacher Visits?**

Half of teachers have taken their classes on field trips to Morro Bay State Park, and almost all of them were satisfied with the experience. In addition, about half of teachers are planning to take field trips to the Park in the next two to three years, although it should be noted that most of these (albeit not all) are teachers who have been there before.

Topics substantial fractions of these teachers believe the Park could help them teach include estuary study, animal habitat, and plants. Other topics appeal to smaller proportions of those planning

to visit, but these three appear to be particularly significant and hence an appropriate focus for planning. Park sites that are of particular interest and might therefore be used as settings for this instructional support are the Museum, the estuary overlook, and the walking and hiking trails.

In a similar vein, it is clear how teachers feel a field trip to the Park should be managed: first guided by trained docents and second guided by State Park staff. Trips led by teachers or parents are appealing to only a relative few. Thus it would seem important to include a provision for guided tours in the master plan.

Key reasons for not taking field trips to the Park seem logical and reasonable: a lack of money and the fact that such a trip would not conform to the curriculum being taught. The Park may therefore want to brainstorm how teachers might obtain the resources to make these field trips (grants are a key teacher request), but we also recognize that this may be impossible given the State's current budget situation.

### **How Can the Park Help Teachers Prepare?**

It is apparent from the survey results that teachers want to be able to plan ahead: the two things they would find most helpful in preparing for a field trip are a packet with pre-visit lessons and activities and pre-visit background information. Particularly important aspects of the latter include a student-centered design, the encouragement of critical thinking, the encouragement of creative thinking, and the inclusion of experiential learning. Importantly in these days of tests and measurement, evaluation measures rank as the least important among packet attributes and can thus probably be excluded from consideration.

### **Are There Other Resources the**

## Park Can Provide?

Generally, teachers' reactions to various educational resources the Park could provide are lukewarm. There is, however, considerable interest in classroom presentations. Program topics of particular interest include wildlife, geology, marine ecology, and estuary ecology. Classroom visits focused on these topics might therefore be considered for inclusion in the master plan, resources permitting.

## Classroom and Student Characteristics

About half of teachers offer environmental stewardship lessons and activities in their classrooms, although the focus of these activities (recycling and composting) is different from what the Park is likely to emphasize. It may be the case, however, that teachers will adopt Park-related lessons and activities if they are provided, either as pre-visit materials or as learning resources.

Teachers view their students as being somewhat knowledgeable about nature and either very or somewhat comfortable about spending time in nature. As the Parks' mission involves both of these components of student growth and development, one aspect of the master plan might be to help teachers improve student knowledge and comfort relative to the natural world.

Most teachers believe students would benefit from verbal information in other languages, and a substantial proportion feel students would benefit from written information in other languages as well. The only language mentioned by any substantial fraction of these teachers is Spanish. Thus if resources are available, it might be appropriate to develop field trip presentations, field trip packets, and classroom materials in Spanish.

## Teacher Characteristics

Almost all of the teachers participating in the survey teach in public schools, and most have been teachers for quite a while. Grades they teach are highly variable, as are subjects, although there is a noticeable group of teachers who focus on science. Finally, almost none of the teachers have participated in the PORTS program. Assuming they are all eligible to participate, these data suggest that the program is either inadequately publicized or of limited utility. This issue may therefore merit further consideration before the master plan is developed.

## What Else Do Teachers Have to Say?

The two most prevalent comments and suggestions teachers offered at the end of the survey concern the cost of bus transportation and a desire to know what the Park has available. The former reinforces our previous recommendation relative to field trip resources; the latter strongly suggests, as we have intimated elsewhere, that teachers are eager for information about how they and their students can benefit from what the Park has to offer. In our opinion, this is a fairly obvious priority for the master plan if the Park wishes to sustain and increase its attractiveness as an educational destination.

## AMENDED CONCLUSIONS AND RECOMMENDATIONS

As noted previously, there are few differences of any note between visitor characteristics and perspectives in the fall or winter and in the summer. In addition, there are only two areas in which any statistically significant differences emerge: interest in learning various things and interest in various ways of learning these things.

These differences are the subject of discussion on the previous pages. Most are the result of what could be termed a higher level of enthusiasm during the summer: visitors during that season evidence greater levels of interest than visitors during the fall and winter. The Park might therefore expect that there will be more overall interest in learning during the summer, or that learners will express more excitement. Whether this has any meaning for an interpretive master plan seems doubtful.

There are, however, differences in priorities among the topics of learning between the seasons. In the fall and winter, Morro Rock, marine life, and wildlife are the three highest priorities; in the summer, they are marine life, wildlife, and ocean ecology. It is important to note, however, that the differences among these priorities are relatively small; it is by no means necessarily the case that a program on Morro Rock will suffer from substantially lower attendance in the summer or that a discussion of ocean ecology will be ignored in the fall and winter. If the Park wants to tailor its presentations to the seasons, however, these findings provide the needed guidance.

A similar situation exists with respect to ways of learning. Outdoor interpretive or educational signs lead in both seasons; as we said in our previous report, this approach emerges throughout the research and will almost certainly be the most beneficial avenue for the Park to pursue. Following signage in the fall and winter are museum exhibits, talks by rangers, and a Park brochure; in the summer, signage is followed by museum exhibits, a Park brochure, and a Web site. Clearly, then, visitors' highest priorities are outdoor signs and museum exhibits; a Park brochure is also featured prominently in both seasons.

Beyond these conclusions, and if the

Park wished to follow the remainder of the data precisely, it would offer talks by rangers in the fall and winter but not in the summer and would develop a Web site tailored to summer visitors. Both of these approaches seem both highly unlikely and somewhat unreasonable; they also ignore the overall greater levels of interest in the summer. Particularly insofar as a Web site is concerned, which represents a major investment, it might make more sense to average the data across seasons and conclude that the overall mean interest in such an investment (3.24 over all seasons) puts it behind not only signage, museum exhibits, and a brochure, but also talks by rangers (overall mean of 3.36).

# APPENDIX C: SURVEY INSTRUMENTS

## MORRO BAY STATE PARK

### INTERPRETIVE MASTER PLAN AND EXHIBIT REPLACEMENT PROJECT

#### VISITOR SURVEY

#### Introduction

Good (morning) (afternoon). My name is YOUR FULL NAME, and I am doing a brief survey of visitors to Morro Bay State Park today. I think you will find the survey interesting, and I only need about five minutes of your time.

#### Interview

1. Is this your first visit to the Park, or have you been here before?
  - 1 FIRST VISIT
  - 2 BEEN HERE BEFORE
  - 3 NOT SURE
2. Do you live in San Luis Obispo County, or are you visiting from another area?
  - 1 LIVE IN COUNTY
  - 2 VISITING FROM ANOTHER AREA
3. Including yourself, how many people are in your party today? IF A LARGE TOUR OR SCHOOL GROUP, SAY: An estimate is fine. \_\_\_\_

#### ASK Q4 THROUGH Q6 IF MORE THAN ONE PERSON IN PARTY.

4. And are you here with friends, family members, both friends and family members, a tour group, a school group, or some other kinds of people?
  - 1 FRIENDS
  - 2 FAMILY MEMBERS
  - 3 BOTH FRIENDS AND FAMILY MEMBERS
  - 4 TOUR GROUP

5 SCHOOL GROUP

6 OTHER: \_\_\_\_\_

5. Are there any children in your party?

1 YES (CONTINUE)

2 NO (SKIP TO Q7)

3 DON'T KNOW (SKIP TO Q7)

**IF YES, ASK:**

6. And how old are these children?

— —

— —

— —

— —

— —

— —

**CONTINUE HERE WITH ALL RESPONDENTS.**

7. What activities are you planning to do at this park today? PROBE FOR CLARITY AND SPECIFIC ACTIVITIES. PROBE FOR OTHER THINGS: What else? RECORD VERBATIM.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

8. Are you planning to visit \_\_\_\_\_ today? How about \_\_\_\_\_?

START WITH LOCATION CHECKED. IF CURRENT LOCATION IS OBVIOUS, CODE WITHOUT ASKING.



	YES	NO	NOT SURE	NEVER HEARD OF THIS
a. <input type="checkbox"/> Morro Rock	1	2	9	8
b. <input type="checkbox"/> The Museum and Visitor Center	1	2	9	8
c. <input type="checkbox"/> the golf course	1	2	9	8
d. <input type="checkbox"/> the marina	1	2	9	8
e. <input type="checkbox"/> the campground	1	2	9	8
f. <input type="checkbox"/> the walking and hiking trails	1	2	9	8
g. <input type="checkbox"/> the heron rookery	1	2	9	8
h. <input type="checkbox"/> the Black Hill overlook	1	2	9	8

9. Have you ever attended an interpretive or educational program in this Park?

- 1 YES (CONTINUE)
- 2 NO (SKIP TO Q11)
- 3 DON'T RECALL/NOT SURE (SKIP TO Q11)

**IF YES, ASK:**

10. And what program or programs have you attended? PROBE FOR CLARITY AND SPECIFICS. PROBE FOR OTHER THINGS: What else? RECORD VERBATIM.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

11. During your visit to Morro Bay State Park, would you definitely, probably, probably not, or definitely not be interested in learning about \_\_\_\_\_? How about \_\_\_\_\_?

	DEFINITELY	PROBABLY	PROBABLY NOT	DEFINITELY NOT	DON'T KNOW/ NO OPINION
a. Morro Rock	4	3	2	1	9
b. Ocean ecology	4	3	2	1	9
c. Estuary ecology	4	3	2	1	9
d. Marine life	4	3	2	1	9
e. Wildlife	4	3	2	1	9
f. the history of the Civillian Conservation Corps	4	3	2	1	9
g. Local Native American culture	4	3	2	1	9
h. Climate change	4	3	2	1	9

**IF ASKED:**

An **estuary** is a body of water where fresh water from rivers and streams meets and mixes with salt water from the ocean. Morro Bay and San Francisco Bay are both estuaries in California.

**Ecology** is the study of relationships between plants, animals, and other organisms and their environments.

The **Civilian Conservation Corps** was a jobs program during the Great Depression. One of its responsibilities was resource conservation and park development projects throughout the country, including at Morro Bay.

**IF AT LEAST ONE “DEFINITELY” OR “PROBABLY” ANSWER IN Q11, ASK Q12. OTHERWISE, SKIP TO Q13.**

12. And would you definitely, probably, probably not, or definitely not be interested in learning about (this) (these things) from \_\_\_\_\_? How about from \_\_\_\_\_? START WITH METHOD CHECKED.

	DEFINITELY	PROBABLY	PROBABLY NOT	DEFINITELY NOT	DON'T KNOW/ NO OPINION
a. <input type="checkbox"/> outdoor interpretive or educational signs SHOW EXAMPLES	4	3	2	1	9
b. <input type="checkbox"/> museum exhibits	4	3	2	1	9
c. <input type="checkbox"/> talks by rangers	4	3	2	1	9
d. <input type="checkbox"/> guided walks led by rangers	4	3	2	1	9
e. <input type="checkbox"/> demonstrations by rangers	4	3	2	1	9
f. <input type="checkbox"/> hands-on activities	4	3	2	1	9
g. <input type="checkbox"/> audio tours	4	3	2	1	9
h. <input type="checkbox"/> films or videos	4	3	2	1	9
i. <input type="checkbox"/> a Park brochure	4	3	2	1	9
j. <input type="checkbox"/> a Park newsletter	4	3	2	1	9
k. <input type="checkbox"/> apps for your smart phone	4	3	2	1	9
l. <input type="checkbox"/> a Park Web site	4	3	2	1	9

13. Now I am going to read you a list of things the Park could do to improve its interpretive and educational efforts. After I have read all of them, please tell me which **two** would be of the **greatest** interest to you if the Park could only afford to do two of them. START WITH ITEM CHECKED.

- 1  Campfire programs
- 2  Applications for smart phones
- 3  Guided walks of less than an hour
- 4  Guided hikes of one to three hours

- 5  Updated museum exhibits
- 6  Outdoor interpretive or educational signs
- 7  Self-guided trail brochures
- 8  Kayak tours
- 9  After school children's programs
- 10  Summertime children's programs
- 11  Online information and activities
- 12 INSISTS CANNOT PICK JUST TWO
- 13 NONE OF INTEREST TO ME

14. Now thinking back to how you planned your trip to this Park, what resources or sources of information did you use? PROBE FOR CLARITY AND SPECIFICS. PROBE FOR OTHER THINGS: What else? RECORD VERBATIM.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

15. While you were at the Park on this trip, did you \_\_\_\_\_? How about \_\_\_\_\_?

**ASK Q16 FOR ALL YES ANSWERS.**

16. And would you say that the \_\_\_\_\_ was very, somewhat, not very, or not at all helpful? How about the \_\_\_\_\_? READ ONLY THE BOLD PART OF EACH ITEM.

	YES	NO	VERY HELPFUL	SOMEWHAT HELPFUL	NOT VERY HELPFUL	NOT AT ALL HELPFUL	DON'T KNOW
a. <input type="checkbox"/> get a <b>Park brochure</b>							
b. <input type="checkbox"/> pick up a <b>Park newsletter</b>							

c. <input type="checkbox"/> interact with a <b>Park staff person</b>							
d. <input type="checkbox"/> look at a <b>museum exhibit</b>							
e. <input type="checkbox"/> look at an <b>outdoor interpretive or educational sign</b>							
f. <input type="checkbox"/> attend a <b>presentation</b>							

17. Now thinking about everything we have been discussing, as well as anything else that is important to you, what one thing could the Park do that would be most likely to have improved your visit? PROBE FOR CLARITY AND SPECIFICS.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Now in order to classify your responses along with others, I need to ask a few questions about you.

18. First, what is the Zip Code where you live? \_\_\_\_\_

99 DON'T KNOW

0 REFUSED

19. What language or languages do you usually speak at home?

\_\_\_\_\_

**IF ONE PERSON IN THE PARTY, ASK Q20:**

20. What is your age, please? \_\_\_\_\_

0 REFUSED

**IF MORE THAN ONE ADULT IN THE PARTY AND THE PARTY IS NOT A TOUR GROUP, ASK Q21:**

21. What are the ages of the adults in your party?

— —

— —

— —

— —

— —

— —

**THANK RESPONDENT!**

DATE:        — — / — — / — —

TIME:

1 AM (BEFORE 12:00 NOON)

2 PM (12:00 NOON AND AFTER)

LOCATION:

1 BLACK HILL OVERLOOK

2 CAMPGROUND

3 GOLF COURSE

4 MARINA

5 MORRO ROCK

6 MUSEUM

7 QUARRY TRAILHEAD

INTERVIEWER:

\_\_\_\_\_

Teacher Survey Instrument

MORRO BAY STATE PARK  
SURVEY OF TEACHERS

⇒ **Field Trip Experience**

1. Have you ever taken one of your classes on a field trip to Morro Bay State Park?

1 Yes (Please Continue With Question 2)

2 (Please Skip to Question 3)

→ **If Yes:**

2. How would you evaluate the field trip in terms of your expectations for students' learning?

4 Excellent

3 Good

2 Fair

1 Poor

9 No Opinion

⇒ **Please Skip to Question 4**

→ **If No:**

3. What are the reasons you have not made any field trips to Morro Bay State Park? *Please be as specific as possible.*

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4. Where have you taken your classes on field trips in California?

Please list all that apply.

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⇒ Possible Morro Bay State Park Field Trips

5. What is the likelihood that you will take one or more of your classes on a field trip to Morro Bay State Park in the next two to three years?

4 Very Likely (Please Continue With Question 6)

3 Somewhat Likely (Please Continue With Question 6)

2 Not Very Likely (Please Skip to Question 11)

1 Not at All Likely (Please Skip to Question 11)

9 Not Sure (Please Skip to Question 11)

→ **If You Are Likely to Make a Field Trip to Morro Bay State Park:**

6. What topics could Morro Bay help you in teaching?

*Please be as specific as possible.*

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7. How would you prefer that a field trip to Morro Bay be managed?

- 1 Guided by State Park Staff
- 2 Guided by Trained Docents
- 3 Self-Guided by Teachers, Parents, and Chaperones
- 9 No Preference

8. How interested would you be in visiting the following sites in the Park?

	VERY INTERESTED	SOMEWHAT INTERESTED	NOT VERY INTERESTED	NOT AT ALL INTERESTED	NO OPINION
a. Morro Rock	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9
b. The Museum of Natural History	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9
c. The estuary overlook	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9
d. The walking and hiking trails	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9
e. The campground	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9

9. How useful would you find the following in preparing for a field trip to Morro Bay?

	VERY USEFUL	SOMEWHAT USEFUL	NOT VERY USEFUL	NOT AT ALL USEFUL	NO OPINION
a. A map of the Park	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9
b. Suggestions of what to bring	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9
c. Guidelines on Park rules and field-trip etiquette	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9
d. Pre-visit background information for teachers, parents, and chaperones	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9

e. A teacher's packet with pre-visit lessons and student activities	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9
f. A Park brochure	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9
g. A copy of the Park newsletter	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9

→If You Would Find a Teacher's Packet Useful (Question 9e):

10. How important would it be to you that the lessons and activities in the packet do the following?

	VERY IMPORTANT	SOMEWHAT IMPORTANT	NOT VERY IMPORTANT	NOT AT ALL IMPORTANT	NO OPINION
a. Encourage critical thinking	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9
b. Encourage creative thinking	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9
c. Include experiential learning	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9
d. Teach the scientific method	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9
e. Are student-centered	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9
f. Address multiple intelligences	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9
g. Address State subject-matter standards	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9
h. Contain evaluation measures	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9

⇒Morro Bay State Park Resources

11. How interested would you be in the following educational resources from Morro Bay State Park?

	VERY INTERESTED	SOMEWHAT INTERESTED	NOT VERY INTERESTED	NOT AT ALL INTERESTED	NO OPINION
a. Videoconference presented by PORTS (Parks Online Resources for Teachers and Students)	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9
b. Presentation in your classroom	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9
c. Supplemental online resources for videoconferences and presentations	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9
d. Online resources to be used independently of videoconferences, presentations, and field trips	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9
e. Hands-on teacher training	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9
f. Service learning for students	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9
g. Service learning for teachers	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9
h. Citizen-science opportunities	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9

12. How interested would you be in Park programs on the following topics?

	VERY INTERESTED	SOMEWHAT INTERESTED	NOT VERY INTERESTED	NOT AT ALL INTERESTED	NO OPINION
a. Estuary Ecology	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9
b. Marine Ecology	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9
c. Watershed Science	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9
d. Wildlife	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9
e. Geology	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9

<b>f. Native American History and Culture</b>	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9
<b>g. Commercial Fishing</b>	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9
<b>h. Endangered Species</b>	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9
<b>i. Climate Change</b>	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 9

⇒About Your Classes and Students

13. Do you offer any environmental stewardship lessons or activities in your classes?

1 Yes (Please Continue With Question 14)

2 No (Please Skip to Question 15)

→If Yes:

14. What environmental stewardship lessons or activities do you offer? Please be as specific as possible.

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15. In general, how knowledgeable would you say your students are about the natural world?

4 Very Knowledgeable

3 Somewhat Knowledgeable

2 Not Very Knowledgeable

1 Not at All Knowledgeable

9 No Opinion

16. Also in general, how comfortable would you say your students are with spending time in nature?

- 4 Very Comfortable
- 3 Somewhat Comfortable
- 2 Not Very Comfortable
- 1 Not at All Comfortable
- 9 No Opinion

17. Would your students benefit from verbal information in other languages?

- 1 Yes (Please Continue With Question 18)
- 2 No (Please Skip to Question 19)

→If Yes:

18. In what language or languages would your students benefit from verbal information?

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19. Would your students benefit from written information in other languages?

- 1 Yes (Please Continue With Question 20)
- 2 No (Please Skip to Question 21)

→If Yes:

20. In what language or languages would your students benefit from written information?

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⇒A Little About You, Please

21. In which of the following types of schools do you teach? Please check all that apply.

1 Public

2 Private

3 Charter

4 Home

22. What grade or grades do you teach? \_\_\_\_\_

23. What subject or subjects do you teach?

\_\_\_\_\_  
\_\_\_\_\_

24. How many years have you been a teacher? \_\_\_\_ \_\_\_\_

25. Have you ever participated in the California State Parks PORTS (Parks Online Resources for Teachers and Students) Program?

1 Yes

2 No

⇒Comments and Suggestions

26. Please use the space below to offer any comments and suggestions you may have about how Morro Bay State Park could help support you and your colleagues as educators.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**THANK YOU FOR TAKING THE TIME TO COMPLETE THIS SURVEY!**

**MORRO BAY STATE PARK**  
**INTERPRETIVE MASTER PLAN AND EXHIBIT REPLACEMENT PROJECT**  
**SUMMER VISITOR SURVEY**

**Introduction**

Good (morning) (afternoon). My name is YOUR FULL NAME, and I am doing a brief survey of visitors to Morro Bay State Park today. I think you will find the survey interesting, and I only need about five minutes of your time.

**Interview**

19. Is this your first visit to the Park, or have you been here before?

- 4 FIRST VISIT
- 5 BEEN HERE BEFORE
- 6 NOT SURE

20. Do you live in San Luis Obispo County, or are you visiting from another area?

- 3 LIVE IN COUNTY
- 4 VISITING FROM ANOTHER AREA

21. Including yourself, how many people are in your party today? IF A LARGE TOUR OR SCHOOL GROUP, SAY: An estimate is fine. \_\_\_\_

**ASK Q4 THROUGH Q6 IF MORE THAN ONE PERSON IN PARTY.**

22. And are you here with friends, family members, both friends and family members, a tour group, a school group, or some other kinds of people?

- 7 FRIENDS
- 8 FAMILY MEMBERS
- 9 BOTH FRIENDS AND FAMILY MEMBERS
- 10 TOUR GROUP
- 11 SCHOOL GROUP

12 OTHER: \_\_\_\_\_

23. Are there any children in your party?

4 YES (CONTINUE)

5 NO (SKIP TO Q7)

6 DON'T KNOW (SKIP TO Q7)

**IF YES, ASK:**

24. And how old are these children?

\_\_\_\_

\_\_\_\_

\_\_\_\_

\_\_\_\_

\_\_\_\_

\_\_\_\_

**CONTINUE HERE WITH ALL RESPONDENTS.**

25. Have you ever attended an interpretive or educational program in this Park?

4 YES (CONTINUE)

5 NO (SKIP TO Q9)

6 DON'T RECALL/NOT SURE (SKIP TO Q9)

**IF YES, ASK:**

26. And what program or programs have you attended? PROBE FOR CLARITY AND SPECIFICS. PROBE FOR OTHER THINGS: What else? RECORD VERBATIM.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



27. During your visit to Morro Bay State Park, would you definitely, probably, probably not, or definitely not be interested in learning about \_\_\_\_\_? How about \_\_\_\_\_?

	DEFINITELY	PROBABLY	PROBABLY NOT	DEFINITELY NOT	DON'T KNOW/NO OPINION
i. Morro Rock	4	3	2	1	9
j. Ocean ecology	4	3	2	1	9
k. Estuary ecology	4	3	2	1	9
l. Marine life	4	3	2	1	9
m. Wildlife	4	3	2	1	9
n. The history of Civillian Conservation Corps	4	3	2	1	9
o. Local Native American culture	4	3	2	1	9
p. Climate change	4	3	2	1	9

**IF ASKED:**

An **estuary** is a body of water where fresh water from rivers and streams meets and mixes with salt water from the ocean. Morro Bay and San Francisco Bay are both estuaries in California.

**Ecology** is the study of relationships between plants, animals, and other organisms and their environments.

The **Civilian Conservation Corps** was a jobs program during the Great Depression. One of its responsibilities was resource conservation and park development projects throughout the country, including at Morro Bay.

**IF AT LEAST ONE “DEFINITELY” OR “PROBABLY” ANSWER IN Q9, ASK Q10. OTHERWISE, SKIP TO Q11.**

28. And would you definitely, probably, probably not, or definitely not be interested in learning about (this) (these things) from \_\_\_\_\_? How about from \_\_\_\_\_? **START WITH METHOD CHECKED.**

	DEFINITELY	PROBABLY	PROBABLY NOT	DEFINITELY NOT	DON'T KNOW/NO OPINION
m. <input type="checkbox"/> outdoor interpretive or educational signs <b>SHOW EXAMPLES</b>	4	3	2	1	9
n. <input type="checkbox"/> museum exhibits	4	3	2	1	9
o. <input type="checkbox"/> talks by rangers	4	3	2	1	9
p. <input type="checkbox"/> guided walks led by rangers	4	3	2	1	9
q. <input type="checkbox"/> demonstrations by rangers	4	3	2	1	9
r. <input type="checkbox"/> hands-on activities	4	3	2	1	9
s. <input type="checkbox"/> audio tours	4	3	2	1	9
t. <input type="checkbox"/> films or videos	4	3	2	1	9
u. <input type="checkbox"/> a Park brochure	4	3	2	1	9
v. <input type="checkbox"/> a Park newsletter	4	3	2	1	9
w. <input type="checkbox"/> apps for your smart phone	4	3	2	1	9
x. <input type="checkbox"/> a Park Web site	4	3	2	1	9

29. Now I am going to read you a list of things the Park could do to improve its interpretive and educational efforts. After I have read all of them, please tell me which **two** would be of the **greatest** interest to you if the Park could only afford to do two of them. **START WITH ITEM CHECKED.**

- 1  Campfire programs
- 2  Applications for smart phones
- 3  Guided walks of less than an hour
- 4  Guided hikes of one to three hours
- 5  Updated museum exhibits
- 6  Outdoor interpretive or educational signs

- 7  Self-guided trail brochures
- 8  Kayak tours
- 12  After school children’s programs
- 13  Summertime children’s programs
- 14  Online information and activities
- 12 INSISTS CANNOT PICK JUST TWO
- 13 NONE OF INTEREST TO ME

Now in order to classify your responses along with others, I need to ask a few questions about you.

30. First, what is the Zip Code where you live? \_\_\_\_ \_\_\_\_ \_\_\_\_ \_\_\_\_ \_\_\_\_

99 DON’T KNOW

0 REFUSED

31. What language or languages do you usually speak at home?

\_\_\_\_\_

**IF ONE PERSON IN THE PARTY, ASK Q14:**

32. What is your age, please? \_\_\_\_ \_\_\_\_

0 REFUSED

**IF MORE THAN ONE ADULT IN THE PARTY AND THE PARTY IS NOT A TOUR GROUP, ASK Q15:**

33. What are the ages of the adults in your party?

\_\_\_\_ \_\_\_\_

\_\_\_\_ \_\_\_\_

\_\_\_\_ \_\_\_\_

\_\_\_\_ \_\_\_\_

\_\_\_\_ \_\_\_\_

**THANK RESPONDENT!**

DATE:        \_\_\_ \_\_\_/\_\_\_ \_\_\_/12

TIME:

2 AM (BEFORE 12:00 NOON)

2 PM (12:00 NOON AND AFTER)

LOCATION:

1 CAMPGROUND

2 MARINA

3 MORRO ROCK

4 MUSEUM

INTERVIEWER: \_\_\_\_\_

## APPENDIX D: 1988 GENERAL PLAN INTERPRETIVE THEMES AND RECOMMENDATIONS

### 1988 General Plan Themes

#### Primary Theme: The Ever-Changing Coast

Interpretation will focus on the geologic and human changes, which have occurred along the San Luis Obispo coast, and which continue to affect the character of the Morro Bay area. It will feature explanations of the geologic forces that have uplifted the marine terraces and formed the coastal bluffs, and the volcanic activity, which caused the creation of Morro Rock and the other morros. It will also look at the more recent developments of the causeway and breakwaters, and their effect on the coast.

##### *Sub-Themes:*

**Monuments to Nature: Volcanic Lessons in Stone.** Morro Rock and the nearby morros can teach lessons on plate tectonics, subduction zones, and volcanism. These concepts will be explained, with particular attention given to illustrating how the geologic forces created the park's impressive stone monuments.

**Shifting Shores: The Constant Movement of Beaches.** The motion of sand particles, their up and down coast movement, and the seasonal transport of sand with its impact on coastal beaches will be a subject for interpretation.

**The Fluctuating Face of Morro Bay.** Morro Bay's features constantly change. Streams continually carry and deposit soil and other debris to build mudflats and marshes. Natural forces, including rainfall, flooding, tidal currents, winds, and waves,

mold and transform the bay's features, alternately filling in and scouring the bay. Every season is different, every year there is change.

#### Primary Theme: The Dynamic World of the Morro Bay Estuary

Interpretation will look at the functioning of Morro Bay's estuarine ecosystem. The fragility and complex interactions and interdependency of the organisms, which occur within Morro Bay, including humanity, will be represented and interpreted to visitors. An ecosystem is a dynamic, not a static, entity. Consequently, interpretation will also encompass current seasonal changes that occur in Morro Bay.

##### *Sub-Themes:*

**The Underwater Community.** This theme will present the rich and varied life found in the marine habitat of Morro Bay. It will also include the oyster beds, and the diving birds, such as pelicans and terns, which feed on the fish at low and high tides.

**Life in Flux: Where Saltwater Meets Freshwater.** Interpretation will look at the diversity of life, which is represented in the littoral habitat of the Morro Bay estuary. The salt marsh environment is a rapidly diminishing resource in California, and is important to a host of specially adapted plants and animals. The effects of periodic submergence and exposure to high and low tides on the tidal mudflats and salt marsh will be examined, along with food chain relationships. Interpretation will seek to foster an aesthetic appreciation of the wetland landscape, and an understanding of the need to protect it.

**Morro Bay: Haven for Rare, Endangered, or Declining Species.** Attention will be focused on rare and endangered species, which find refuge in the Morro Bay estuary. Among those

that may be interpreted are the peregrine falcon, Moroak kangaroo rat, and the California least tern.

Man's Critical Link to the Estuary. Life in the estuary is interconnected. The urbanization of the Morro Bay area has changed and will continue to affect the estuarine environment. The effects of agriculture and urbanization, dredging, the oyster Industry, commercial fishing, oil exploration with its accompanying development, and recreation will be examined for their impact on the estuary.

### **Primary Theme: Survival in the Coastal Scrub Communities**

The plants and animals that live in the scrub on the hillsides of Morro Bay State Park are adapted to lack of water, heat, sudden strong rainfall, and periodic desiccating winds. Only species that can adapt to these arduous conditions have survived and live in the area. To some visitors, the brushy hillsides adjoining the park's wetlands will seem devoid of life. Revelation of the many different life forms in these areas and the ways they have adapted to their harsh surroundings will be an important interpretive theme.

#### *Sub-Themes:*

The Riparian Community. During winter and spring, and sometimes the first part of summer, small creeks in Morro Bay State Park flow, and the plants along their banks flourish. When the water dries up, the plants die back, and the animals that have depended on this source to survive find water elsewhere. Although this cycle is brief, it is important to the ecology of the park as a whole, and its interpretation is part of understanding the adaptation for survival that is necessary in the natural world.

Eucalyptus Gone Wild. The dense forest of blue gums located in the park on the lower slopes of Black Hill are not native to

California. Interpretation will explore the tree's history in the park, and its impact on the native vegetation.

### **Primary Theme: Special Species to Seek**

Visitors will be directed toward unusual plant and animal species that may require some effort to find at Morro Bay State Park.

#### *Sub-Themes:*

A Bird for Each Habitat. Interpretation will examine the range of birds that make their home in the park, including least sandpipers, willets, great blue herons, sage sparrows, California quails, western meadowlarks, and Anna's and Allen's hummingbirds, to name a few.

Watching for Whales and Other Marine Mammals. Morro Bay State Park offers excellent views of the winter and spring migrations of the gray whale from the base of Morro Rock, as well as from Black Hill. Interpretation will encompass their size, habits, diet, navigation; when, where, and why they migrate; clues to their identification; courtship and rearing of the young; and a brief history of whaling, their threatened extinction, the need for protection, and the present status of the species. In addition, identifying information about other marine mammals commonly observed along this coastline, such as the sea otter, should be provided.

Tracking Down Mammals. Interpretation will help visitors recognize animal tracks and trails, holes and burrows, gnaw marks, droppings, and other clues in order to discover the presence of mammals in their different habitats.

Unusual Plants and Animals of Morro Bay. Those species that are uncommon in their appearance or habits, and are found nearby, will be highlighted. Interpretive approaches may include: "Remarkable

Grunion" the unusual spawning habits of the grunion, "Monarchs and Milkweed" the long migration

and clustering on "butterfly trees" and association with milkweed, the endangered Morro Bay kangaroo rat and the Morro blue butterfly, migratory waterfowl, and wildflowers in bloom, among other topics.

### **Primary Theme: The Changing Views of Morro Bay's Landscape**

Interpretation will look at the lands around Morro Bay and how they have been used to serve a diversity of cultures and their needs, from subsistence to colonization and commerce to recreation, and how those cultures have affected the environment.

#### *Sub-Themes:*

**The Chumash: Getting the Most Out of Their Natural World.** A community of Native Americans called Chumash once depended on the resources found in Morro Bay State Park for survival. Their lives revolved around the seasonal changes in the environment, and the varying forms of resources available to them. Interpretation will provide visitors an understanding of these people and their long tradition of interaction with the environment.

**The Spaniards Secure a Land for God and King.** Early explorers, such as Juan Rodriguez Cabrillo and Sebastian Vizcaino, visited the Morro Bay area to help Spain gain knowledge of the territories it had claimed in California. More than a hundred years later, rumors of Russians in the northern Pacific encouraged Spain's renewed interest in California. Franciscan padres, with the support of the Spanish military, were sent into the region, to make Christian converts, and to secure the land for the Spanish Empire. Interpretation will examine how world events changed Spain's perspective of California, and how

this affected the Morro Bay area.

**Morro Bay Ranchos: Coastal Enterprise on the Mexican Frontier.** Property that now comprises Morro Bay State Park was once part of several Mexican ranchos. Interpretation will examine how Mexican citizens, granted property on California's Mexican frontier, demonstrated both self-sufficiency and commercial enterprise.

**The Creation of a Recreational Area for All the People.** In the late nineteenth and early twentieth centuries, the Morro Bay area was "discovered" as a vacation spot by Los Angeles and San Joaquin Valley residents. Recognizing its potential, investors and developers in the area of present-day Morro Bay State Park began to create recreational facilities for vacationers in the 1920s, including a golf course, a clubhouse, bridle paths, stables, and cabins. The story of acquisition and development of this state park will be interpreted, with special attention given to the Civilian Conservation Corps, which was responsible for constructing the original campgrounds, rest rooms, water lines, drainage ditches, picnic facilities, etc.

### **Secondary Theme: The State Park System Story**

The development of the State Park System will be interpreted. Interpretation will treat the coast as a region, orienting visitors to the resources and recreational values of the nearby state beaches and parks, as well as notable local parks administered by other agencies.

#### *Recreation*

The diverse recreational opportunities available at Morro Bay State Park will be interpreted, along with appropriate regulations and safety tips.

### **Primary Theme: Having Fun Offshore**

Opportunities wind surfing, sailing, and canoeing should be interpreted for visitors unfamiliar with those sports. Techniques, regulations, and points of access should be covered, and a tide schedule should be kept posted.

### **Primary Theme: Fishing for Sport**

Interpretation will highlight edible fish and clams commonly caught in the surf and on the beach, possibly including barred perch, jacksmelt, kelp greenling, silver perch, starry flounder, walleye surfperch, and gaper clam. It will also cover the best time of the year to catch them, as well as fishing techniques and applicable regulations.

### **Primary Theme: Dive into the Underwater World**

Interpretation will illustrate appropriate skin and scuba diving equipment, techniques, regulations, safety, and favorable water conditions.

### **Primary Theme: Courtesy and Common Sense**

Morro Bay offers a wide range of recreational opportunities, including hiking, jogging, bicycling, bird-watching, golfing, camping, boating, etc. No one recreational activity "owns" the park, and many must share roads, trails, and facilities. Interpretation will remind visitors that safe, courteous use of the park is everyone's responsibility, and will make their experience that much more enjoyable.

#### *Management and Safety*

Interpretation will inform visitors how to use the parklands safely, as well as indicating ways to preserve the

environment. It should support the unit staff involved with enforcing regulations, providing visitors the justification for regulations.

### **Primary Theme: Be Safe at the Beach**

Interpretation will aid visitors by explaining the formation and hazards of rip currents, sleeper waves, and backwash. It should also warn visitors about other dangers, such as stinging jellyfish, stingrays, sunburn, and buried glass.

### **Primary Theme: Protecting the Park is Your Responsibility**

The future environmental quality of the state park lies with each visitor. Interpretation will stress how erosion can be minimized and plants and animals preserved for generations, if visitors are mindful of the "rules" that protect the park. By staying on marked trails, visitors will also avoid hazards, such as unpleasant encounters with poison oak and ticks.

### **Secondary Theme: Rebuilding the Natural Garden**

The constant use of the natural environment by visitors for recreation and the introduction of non-native plants can change the character of the park. From time to time, steps will be taken to replant or replace vegetation. Foot traffic may also be restricted to specific areas. These measures, with public cooperation, should soon restore the environment to its natural beauty.

### **Secondary Theme: Management by Fire**

Periodically, the Department of Parks and Recreation uses prescribed fire as a tool to manage native plant communities. Once a naturally occurring event, fire is now used in the parklands in confined areas



to restore and maintain native vegetation. Interpretation will explain the reasons for prescribed burns, and the benefits that are derived from them.

### *Recommendations*

Continue to offer guided walks, demonstrations, interpretive presentations, campfire programs, and Junior Ranger programs, when projected visitor participation warrants these efforts. (Ongoing in 2014)

Develop and update monthly or seasonal visitor activity guides; bird, animal, and plant lists; orientation brochures, books, and bibliographies highlighting the state park's resources. (Partially implemented in 2014)

Continue development and Improvement of the Ellen Bowen Learning Center library. (Ongoing in 2014)

Revise and improve the teacher's guide for Morro Bay State Park, to facilitate visitation by school groups. (Partially implemented, recommended in 2014 IMP)

Continually improve a comprehensive training program for staff and docents. (Ongoing in 2014)

Fabricate and install new orientation/interpretive shelters at the campground entrance, the new marina day use area, along the marina trail, outside the Morro Bay Museum of Natural History, the Chorro Willow sparking area, the South Bay Boulevard parking area, the Cerro Cabrillo day use area, and the Morro Rock parking area. (Partially implemented, recommended in 2014 IMP)

Develop a series of standard-size interpretive panels based on the themes described, and plan a seasonal rotation program for them. (Similar recommendation in 2014 IMP)

Relocate the campfire center, and install new interpretive exhibit shelters here. (Campground Center renovated, but not moved. No shelters developed.)

Develop a wetland boardwalk with low sight-level interpretive exhibits. (Boardwalk completed 2012, panels recommended in 2014 IMP)

Develop a new interpretive plan for the Morro Bay Museum of Natural History, with specific recommendations for the exhibits, and, in consultation with an architect, recommendations for other improvements in the facility. (Completed 2002)

Fund and construct new interpretive exhibits at the Morro Bay Museum of Natural History, along with improvements to the facility, as recommended in the interpretive plan. (Completed 2002)

Establish new self-guiding trails with accompanying brochures focusing on the previously described interpretive themes. (Similar recommendation in 2014 IMP)

Develop panoramic view/orientation panels for overlooks on the Cerro Cabrillo day-use area and Black Hill. (Similar recommendation in 2014 IMP)

Pave the path to the heron rookery from the nearby parking area, and install an observation deck with an interpretive exhibit shelter and panels. (Smaller scale improvements made)

Create audio-visual programs based on the previously described interpretive themes for use in and outside the park. (Not completed)



## APPENDIX E: MUSEUM RESTORATION PLAN SPECIES LISTS

Species are listed by the habitat in which they are found and are grouped in trophic levels.

### Rocky Shore

#### Producers

Fire algae (microscopic pyrrhophytes):  
Dinoflagellates

Golden-brown algae (microscopic chrysophytes): Diatoms

Green algae (chloropytes)

Enteromorpha intestinalis

Sea lettuce, *Ulva* sp.

Brown algae (phaeophytes)

Feather boa, *Egregia menziesii*

Oar weed, *Laminaria dentigera*

Rock weed, *Pelvetia fastigiata*

Giant kelp, *Macrocystis pyrifera*

Red algae (rhodophytes):

Small coral algae, *Corallina vancouveriensis*

*Endocladia muricata*

*Gastroclonium coulteri*

*Gelidium coulteri*

Turkish towel, *Gigartina corymifera*

*Gracilaria lemaneiformis*

*Iridea flaccida*

*Petrocelis middendorffii*

Nori, laver, *Porphyra perforata*

Vascular plant (tracheophyte):

Surfgrass, *Phyllospadix torreyi*

#### Primary Consumers

Microorganisms: Browsers of Macroscopic Algae

California brown sea hare, *Aplysia californica*

Eroded periwinkle, *Littorina planaxis*

Chiton, *Ischnochiton regularis*

Chiton, *Katharina tunicata*

Gumboot chiton, *Cryptochiton stelleri*

Shield limpet, *Collisella pelta*

File limpet, *Collisella limatula*

Black abalone, *Haliotis cracheroidi*

Black turban snail, *Tegula funebris*

Lined shore crab, *Pachygrapsus crassipes*

Kelp crab, *Pugettia producta*

Purple sea urchin, *Strongylocentrotus purpuratus*

Red sea urchin, *Strongylocentrotus franciscanus*

Monkeyface prickleback, *Cebidichthys violaceus*

## Primary and Secondary Consumers

Herbivorous zooplankton: primarily copepods

Carnivorous zooplankton: invertebrate and fish larvae

Vase sponge, *Leucilla nuttingi*

Volcano sponge, *Haliclona sp.*

Hydroid, *Sertularia furcata*

Encrusting bryozoan, *Celleporaria brunnea*

Aggregating anemone, *Anthopleura elegantissima*

Acorn barnacle, *Chthamalus fissus*

Leaf barnacle, *Pollicipes polymerus*

California mussel, *Mytilus californianus*

Rock scallop, *Hinnites giganteus*

Colonial tunicate, *Archidistoma molle*

White brittle star, *Amohipholis squamata*

White sea cucumber, *Eupentacta quinquesemita*

Red slipper cucumber, *Lissothuria nutriens*

Nereid worm, *Nereis grubei*

Purple-ringed top snail, *Callistoma annulatum*

Masking crab, *Loxorhynchus crispatus*

Notchbrow blenny, *Hypsoblennius gilberti*

Wooly sculpin, *Clinocottus analis*

Opaleye, *Girella nigricans*

## Secondary Consumers

Ostrich-plume hydroid, *Aglaophenia struthionoides*

Proliferating anemone, *Epiactis prolifera*

Flatworm, *Notoplana acticola*

Ribbon worm, *Paranemertes oeregrina*

Nudibranch, *Dirona oicta*

Emarginate dogwinkle, *Nucella emarginata*

Two-spotted octopus, *Octopus bimaculatus*

Ochre starfish, *Pisaster ochraceus*

Leather star, *Dermasterias imbricata*

Broad six-armed star, *Leptasterias hexactis*

Willet, *Catoptrophorus semipalmatus*

Black turnstone, *Arenaria melanocephala*

Black oystercatcher, *Haematopus bachmanni*

## Secondary and Tertiary Consumers

Green anemone, *Anthopleura xanthogrammica*

Cabazon, *Scorpaenichthys marmoratus*

Brown rockfish, *Sebastes auriculatus*

Kelp rockfish, *Sebastes atrovirens*

Kelp greenling, *Hexagrammos decagrammus*

California sea lion, *Zalophus californianus*

Steller sea lion, *Eumetopias jubatus*

Harbor seal, *Phoca vitulina*

Sea otter, *Enhydra lutris*

Killer whale, *Orcinus orca*

Lingcod, *Ophiodon elongatus*

Brandt's cormorant, *Phalacrocorax penicillatus*

Brown pelican, *Pelecanus occidentalis*

Peregrine falcon, *Falco peregrinus*

### Scavengers

Rock louse, *Ligia occidentalis*

Hermit crab, *Pagurus samuelis*

Rock crab, *Cancer antennarius*

Kelp fly, *Melaodria crepuscula* or *Oedopaerena glauca*

Bat star, *Patiria miniata*

Ring-billed gull, *Larus delawarensis*

Western gull, *Larus occidentalis*

California gull, *Larus californicus*

Herring gull, *Larus argentatus*

Heerman's gull, *Larus heermanni*

### Migratory Species

Pacific gray whale, *Eschrichtius gibbosus*

## Sandy Shore

### Producers

Fire algae (microscopic pyrrrophytes):  
dinoflagellates

Golden-brown algae (microscopic  
chrysophytes): diatoms

Washed-up macroscopic algae primarily  
brown algae (phaeophytes): *Macrocystis*  
*sp.* and *Nereocystis sp.*

### Filter Feeders

Opposum shrimp, *Archaeomysis macylata*

Mole crab, *Emerita analoga*

Northern razor clam, *Siliqua patula*

Pismo clam, *Tiyela stultorum*

Bean clam, *Donax gouldii*

Eccentric sand dollar, *Dendraster*  
*excentricus*

California grunion, *Leuresthes tenuis*

### Deposit Feeders

Purple olive, *Olivella biplicata*

Bloodworm, *Euzonus mucronuta*

### Secondary Consumers

Nemertean worms

Polychaete worm, *Nephtys californiensis*

Isopod, *Exciorolana linguifrons*

Centipede, *Nyctunguis heathii*  
Pseudoscorpion, *Garypus sp.*  
Mite, *Neomolgus littoralis*  
Spider, *Spirembolus mundus*  
Water-scavenger beetle larvae, *Cercyon sp.*  
Rove beetle, *Cafius sp.*  
Pictured rove beetle, *Thinopinus pictus*  
Black surfperch, *Embiotoca jacksoni*  
Walleye surfperch, *Hyperprosopon argenteum*  
Striped surfperch, *Embiotoca lateralis*  
Shiner surfperch, *Cymatogaster aggregata*  
Barred surfperch, *Amphistichys argenwus*  
Calico surfperch, *Amphistichus koeizi*  
Surf scoter, *Melanitta perspicillata*  
Western snowy plover, *Charadrius alexandrinus nivosus*  
Sanderling, *Calidris alba*  
Dunlin, *Calidris alpina*  
Western sandpiper, *Calidris mauri*  
Long-billed curlew, *Numeoius americanus*  
Marbled godwit, *Limosa fedoa*  
Willet, *Caloptrophorus semipalmatus*  
Least sandpiper, *Calidris minutilla*  
Cliff swallow, *Hirundo pyrrhonota*  
White-throated swift, *Aeronautes saxatalis*

## **Secondary and Tertiary Consumers**

White croaker, *Genyonemus lineolatus*  
Harbor seal, *Phoca vitulina*  
California sea lion, *Zalophus californicus*  
Sea otter, *Enhydra lutris*  
California halibut, *Paralichthys californicus*  
Red-throated loon, *Gavia stellata*  
Brown pelican, *Pelecanus occidentalis*  
Brandt's cormorant, *Phalacrocorax penicillatus*  
Red-breasted merganser, *Mergus serrator*  
Western grebe, *Aechmophorus occidentalis*  
Elegant tern, *Sterna elegans*  
California least tern, *Sterna albifrons browni*  
Peregrine falcon, *Falco peregrinus*

## **Scavengers**

Isopod, *Alloniscus perconvexus*  
Spiny mole crab, *Blepharipoda occidentalis*  
Long-horned beach hopper, *Orchestoidea californiana*  
Kelp flies, *Coelopa vanduzeei*  
Western gull, *Larus occidentalis*  
Ring-billed gull, *Larus delawarensis*  
Heerman's gull, *Larus heermanni*

California gull, *Larus californicus*

Brewer's blackbird, *Euphagus cyanocephalus*

### Migratory Species

Pacific gray whale, *Eschrichtius gibbosus*

### Coastal Dunes

#### Producers (Foredune Colonizers and Unstabilized Dune Plants)

Sea rocket, *Cakile maritima*

Red sand verbena, *Abronia maritima*

Sand verbena hybrids, *Abronia sp.*

Beach bur, *Ambrosia chamissonis*

European dune grass

Beach evening primrose, *Camissonia cheiranthifolia*

Beach poppy, *Eschscholzia californica* var. *maritima*

Ice plant, *Carpobrotus aegilaterus*

Dune malacothrix, *Malacothrix incana*

Crisp monardella, *Monardella crisoa*

San luis monardella, *Monardella undulata* var. *frutescens*

Island wallflower, *Erysimum insulare*

Coastal gumplant, *Grindelia latifolia*

Blochman's leafy daisy, *Erigeron foliosus*

var. *blochmaniae*

Beach spectacle pod, *Dithyrea maritima*

### Secondary Producers

Dune lupine, *Lupinus chamissonis*

Deerweed, *Lotus scoparius*

Croton, *Croton californicus*

Mock heather, *Haplopappus ericoides*

Sea lettuce, *Dudleya caespitosa*

Beach aster, *Corethrogyne leucophylla*

Willow sp.

Sand food, *Pholisma sp.*

Large-leafed wallflower, *Erysimum suffrutescens* var. *grandifolium*

### Primary Consumers

Morro shoulderband snail, *Helminthoglypta walkeriana*

Fence lizard, *Sceloporus occidentalis*

House finch, *Carpodacus mexicanus*

White-crowned sparrow, *Zonotrichia leycophrys*

Morro Bay kangaroo rat, *Dipodomys heermanni morroensis*

Deer mouse, *Peromyscus maniculatus*

Black-tailed jackrabbit, *Lepus californicus*

Black-tailed deer, *Odocoileus hemionus*

## Secondary Consumers

Ant lion, Myrmeleontidae family

Tiger beetle, *Cicindela sp.*

California legless lizard, *Anniella pulchra*

Bewick's wren, *Thryomanes bewickii*

Killdeer, *Charadrius vociferus*

Burrowing owl, *Athene cunicularia*

Northern harrier, *Circus cyaneus*

Ants

California quail, *Lophortyx californicus*

Red-winged blackbird, *Agelaius phoeniceus*

Song sparrow, *Melospiza melodia*

Coyote, *Canis latrans*

Striped skunk, *Mephitis mephitis*

## Coastal Wetland

### Producers

Fire algae (microscopic pyrrrophytes):  
dinoflagellates

Golden-brown algae (microscopic  
chrysophytes): diatoms

Blue-green algae (microscopic  
cyanophytes)

Red algae (rhodophytes)

Brown algae (phaeophytes)

Green algae (chlorophytes)

*Enteromorpha spp.*

*Ulva spp.*

Vascular plant (tracheophyte): eel grass

### Primary and Secondary Consumers

Herbivorous zooplankton: primarily  
copepods (bay waters; eat mostly  
diatoms)

Carnivorous zooplankton: invertebrate  
and fish larvae

Crumb-of-bread sponge, *Halichondria  
panicea*

Red sponge, *Ophlitaspongia pennata* or  
*Plocamia karykina*

Hydroid, *Obelia sp.*

Aggregating anemone, *Anthopleura  
elegantissima*

Plumose anemone, *Metridium senile*

Tunicate, *Ciona intestinalis*

Fat innkeeper worm, *Urechis caupo*

Basket cockle, *Clinocardium nuttallii*

Geoduck, *Panope generosa*

Bent-nose clam, *Macoma nasuta*

Washington clam, *Saxidomus nuttallii*

Gaper clam, *Tresus nuttallii*

Northern razor clam, *Siliqua patula*

Thin-shelled littleneck, *Protothaca  
tenerrima*



Rough piddock, *Zirfaea pilsbryi*

Rough-sided littleneck, *Protothaca laciniata*

Common littleneck, *Protothaca staminea*

Bay mussel, *Mytilus edylls*

White sand clam, *Macoma secta*

Straight horse mussel, *Modiolus rectus*

Bodega tellen, *Tellina bodegensis*

Purple clam, *Nuttallia nuttallii*

Abalone jingle, *Pododesmus cepio*

Acorn barnacle, *Balanus nubilus*

Barnacle, *Chthamalus fissus*

White acorn barnacle, *Balanus glandula*

Blue mud shrimp, *Upogebia puggettensis*

Skeleton shrimp, *Caprella californica*

Sand dollar, *Dendraster excenticus*

### Primary Consumers

California brown sea hare, *Aplysia californica*

California horn shell, *Cerithidea californica*

Checkered periwinkle, *Littorina scutulata*

Mossy chiton, *Mopalia muscosa*

Shield limpet, *Collisella pelta*

File limpet, *Collisella limatula*

Mud-flat crab, *Hemigrapsus oregonensis*

### Secondary Consumers

Lewis's moon snail, *Polinices lewisii*

Atlantic oyster drill, *Urosalpinx cinerea*

Nuttall's hornmouth snail, *Ceratostoma nuttalli*

Sea spider, *Pycnogonum stearns*

Leather star, *Dermasterias imbricata*

Bay pipefish, *Syngnathus leptorhynchus*

Arrow goby, *Cleyelandia ios*

Tidewater goby, *Eycyclogobius newberryi*

Northern anchovy, *Engraulis mordax*

Topsmelt, *Atherinops affinis*

Jacks melt, *Atherinopsis californiensis*

Bat ray, *Myliobatis californica*

Staghorn sculpin, *Leptocottus armatus*

Black surfperch, *Embiotoca jacksoni*

Walleye surfperch, *Hyperprosopon argenteum*

Shiner surfperch, *Cymatogaster aggregata*

Barred surfperch, *Amphistichus argenteus*

Eared grebe, *Podiceps nigricollis*

White-winged scoter, *Melanitta fysea deglandi*

Surf scoter, *Melanitta perspicillata*

Bufflehead, *Bucephala albeola*

Clapper rail, *Rallus longirostris*

Willet, *Catoptrophorus semipalmatus*

Marbled godwit, *Limosa fedoa*  
Whimbrel, *Numenius phaeopus*  
Black turnstone, *Arenaria melanocephala*  
Black-bellied plover, *Pluvialis squatarola*  
Semipalmated plover, *Charadrius semipalmatus*  
Western snowy plover, *Charadrius alexandrinus nivosus*  
Dunlin, *Calidris alpina*  
Killdeer, *Charadrius vociferus*  
Least sandpiper, *Calidris minutilla*  
Western sandpiper, *Calidris mauri*  
Greater yellow legs, *Tringa flavipes*  
Long-billed curlew, *Numenius americana*  
Short-billed dowitcher, *Limnodromus griseus*  
Long-billed dowitcher, *Limnodromus scolopaceus*  
Common snipe, *Gallinago gallinago*  
Ornate shrew, *Sorex ornatus*  
Sea otter, *Enhydra lytris*  
Northern harrier, *Circus cyaneus*

### **Secondary and Tertiary Consumers**

Leopard shark  
Horn shark, *Heterodontus francisci*  
Big skate, *Raia binoculata*

Shovelnose guitar fish, *Rhinobatus productus*  
Speckled sanddab, *Citharichthys stigmaeus*  
California halibut, *Paralichthys californicus*  
Plainfin midshipman, *Porichthys notatus*  
Virginia rail, *Rallus limicola*  
Pied-billed grebe, *Podilymbus podiceps*  
Harbor seal, *Phoca vitulina*  
Red-throated loon, *Gavia stellata*  
Common loon, *Gavia immer*  
Pacific loon, *Gavia pacifica*  
Brown pelican, *Pelecanus occidentalis*  
American white pelican, *Pelecanus erythrorhynchos*  
Double-crested cormorant, *Phalacrocorax auritus*  
Brandt's cormorant, *Phalacrocorax penicillatus*  
Pelagic cormorant, *Phalacrocorax pelagicus*  
Red-breasted merganser, *Mergus serrator*  
Western grebe, *Aechmophorus occidentalis*  
Great blue heron, *Ardea herodias*  
Black-crowned night heron, *Nycticorax nycticorax*  
Green-backed heron, *Butorides striatus*  
Great egret, *Casmerodius albus*  
Snowy egret, *Egretta thuylla*

American bittern, *Botaurus lentiginosus*

Forster's tern, *Sterna forsteri*

Royal tern, *Sterna maxima*

Caspian tern, *Sterna caspia*

Elegant tern, *Sterna elegans*

California least tern, *Sterna albifrons browni*

Belted kingfisher, *Ceryle alcyon*

Osprey, *Pandion haliaetus*

Peregrine falcon, *Falco peregrinus*

## Salt, Brackish, and Freshwater Marsh

### Producers

Fire algae (microscopic pyrrhophytes):  
Dinoflagellates

Golden-brown algae (microscopic  
chrysophytes): diatoms

Blue-green algae (microscopic  
cyanophytes)

Euglenoids (microscopic euglenophytes)

Green algae (chlorophytes)

Pickleweed, *Salicornia virainica*

Sea blite, *Suaeda californica*

Frankenia, *Frankenia grandifolia*

Jaumea, *Jaumea carnosa*

Salt grass, *Distichlis spicata*

Arrowgrass, *Triglochin concinna*

Sea lavender, *Limonium californicum*

Three-square, *Scirpus americana*

Bulrush, *Scirous spp.*

Bog rush, *Juncus effusus var. brunneus*

Ditch grass, *Ruppia maritima*

Dodder, *Cuscuta spp.*

### Primary and Secondary Consumers

Herbivorous zooplankton: primarily  
copepods

Carnivorous zooplankton: invertebrate  
and fish larvae

Bacteria protozoa sponges hydras rotifers  
flatworms

Segmented worms snails

Crustaceans

Insects (larvae and adults)

### Primary Consumers

American wigeon, *Anas americana*

Cinnamon teal, *Anas cyanoptera*

California meadow vole, *Microtus californicus*

Harvest mouse, *Reithrodontomys megalotis*

Black-tailed jackrabbit, *Lepus californica*

## **Secondary and Tertiary Consumers**

Fishes

Frogs

Marsh wren, *Cistothorus palustris*

Black phoebe, *Sayornis nigricans*

Tree swallow, *Tachycineta bicolor*

## **Coastal Stream Species**

### **Producers (Aquatic)**

Filamentous algae

Encrusting diatoms

Aquatic mosses

### **Primary Consumers**

Stonefly nymph

Mayfly nymph

Caddisfly larvae

Midge larvae

Pacific treefrog tadpole, *Hyla regilla*

### **Secondary Consumers**

Predaceous water beetle, Dytiscidae Family

Water strider, Gerridae Family

Water boatmen, Corixidae Family

Back swimmers, Notonectidae Family

Damselfly naiad

Dragonfly naiad

Steelhead rainbow trout, *Salmo gairdnerii gairdnerii*

### **Producers (Terrestrial)**

#### **Canopy Species:**

Red willow, *Salix lasiandra*

Yellow willow, *Salix laevigata*

Arroyo willow, *Salix lasiolepis*

Black cottonwood, *Populus trichocarpa*

California sycamore, *Platanus racemosa*

#### **Mid-Canopy Species:**

Western dogwood, *Cornus occidentalis*

Blue elderberry, *Sambucus mexicana*

California wax myrtle, *Myrica californica*

Twinberry, *Lonicera involucra*

#### **Low Canopy Species:**

California wax myrtle, *Myrica californica*

Coffeeberry, *Rhamnus californica*

Poison oak, *Toxicodendron diversilobum* or *Rhus diversiloba*

Blackberry, *Rubus sp.*

Gooseberry, *Ribes sp.*

Stinging nettle, *Urtica holosericea*

### **Primary Consumers (Terrestrial)**

Spittlebug

Leafhopper scale insect

Aphid snail

Monarch butterfly, *Danaus plexippus*

Morro blue butterfly, *Icaricia icaroides morroensis*

Anna's hummingbird, *Calypte anna*

House finch, *Carpodacus mexicanus*

Lesser goldfinch, *Carduelis psaltria*

American goldfinch, *Carduelis trisis*

Parasitic mouse, *Peromyscus californicus*

Dusky-footed woodrat, *Neotoma fuscipes*

### **Secondary Consumers (Terrestrial)**

Dragonfly adult, suborder Anisoptera

Damselfly adult, suborder Zygoptera

Pacific treefrog adult, *Hyla regilla*

Western toad, *Bufo boreas*

Western skink, *Eumeces skiltonianus*

Garter snake, *Thamnophis sp.*

Wilson's warbler, *Wilsonia pusilla*

Yellow warbler, *Dendroica petechia*

Orange-crowned warbler, *Vermivora celata*

Yellow-rumped warbler, *Dendroica coronata*

Least Bell's vireo, *Vireo bellii pusillus*

Hutton's vireo, *Vireo huttoni*

Black phoebe, *Sayornis nigricans*

Western flycatcher, *Epidonax difficilis*

Bewick's wren, *Thryomanes bewickii*

House wren, *Troglodytes aedon*

Blue-gray gnatcatcher, *Polioptila caerulea*

Nuttall's woodpecker, *Picoides nuttallii*

Tree swallow, *Iridoprocne bicolor*

Red-shouldered hawk, *Buteo lineatus*

American kestrel, *Falco sparverius*

Screech owl, *Otus asio*

Ornate shrew, *Sorex ornatus*

### **Primary and Secondary Consumers (Terrestrial)**

Ants

Plain titmouse, *Parus inornatus*

American robin, *Turdus migratorius*

Hermit thrush, *Catharus guttatus*

Northern mockingbird, *Mimus polyglottos*

Lazuli bunting, *Passerina amoena*

Dark-eyed junco, *Junco hyemalis*

Song sparrow, *Melospiza melodia*

Fox sparrow, *Passerella iliaca*

Golden-crowned sparrow, *Zonotrichia atricapilla*

Lincoln's sparrow, *Melospiza lincolnii*

Brown-headed cowbird, *Molothrus ater*

Gray fox, *Urocyon cinereoargenteus*

Raccoon, *Procyon lotor*

Opossum, *Didelphis marsupialis*

## **Decomposers**

Bacteria

Fungi

Protozoa

Worms

Isopods

Termites

Spring-tails

Millipedes

## **Oak Woodland**

### **Producers**

### **Canopy Plants:**

Coast live oak, *Quercus agricola*

California bay, *Umbellularia californica*

Lace lichen, *Ramalina sp.*

### **Understory Plants:**

Grasses

Poison oak, *Rhus diversiloba*

Coffeeferry, *Rhamnus californica*

Miner's lettuce, *Montia perfoliata*

Bracken fern, *Pteridium aquilinum var. pubescens*

Crimson sage, *Salvia spathacea*

San Luis Obispo sedge, *Carex obispoensis*

### **Primary Consumers**

Honey bee, *Apis mellifera*

Gall wasps, Cynipidae Family

Black-tailed deer, *Odocoileus hemionus*

California pocket mouse, *Perognatus californicus*

California ground squirrel, *Spermophilus beecheyi*

Botta's pocket gopher, *Thomomys bottae*

Western gray squirrel, *Sciurus griseus*

Parasitic mouse, *Peromyscus californicus*

Dusky-footed woodrat, *Neotoma fuscipes*

## Secondary Consumers

California slender salamander,  
*Batrachoseps attenuatus*

Ringneck snake, *Diadophis punctatus*

Gopher snake, *Pituophis melanoleucus*

Western rattlesnake, *Crotalus viridis*

Common kingsnake, *Lampropeltis gettulus*

Southern alligator lizard, *Gerrhonotus multicarinatus*

Yellow warbler, *Dendroica petechia*

Western flycatcher, *Epidonax difficilis*

Blue-gray gnatcatcher, *Polioptila caerulea*

Nuttall's woodpecker, *Picoides nuttalli*

Downy woodpecker, *Picoides pubescens*

Sharp-shinned hawk, *Accipiter striatus*

Cooper's hawk, *Accipiter cooperi*

Red-shouldered hawk, *Buteo lineatus*

Red-tailed hawk, *Buteo jamaicensis*

Northern harrier, *Circus cyaneus*

Great horned owl, *Bubo virginianus*

Big brown bat, *Eptesicus fuscus*

California bat, *Myotis californicus*

Bobcat, *Lynx rufus*

Plain titmouse, *Parus inornatus*

Northern flicker (red-shafted), *Colaptes auratus cafer*

Scrub jay, *Aphelocoma coerulescens*

Rufous-sided towhee, *Pipilo erythrophthalmus*

Raccoon, *Procyon lotor*

Opossum, *Didelphis marsupialis*

Gray fox, *Urocyon cinereoargenteus*

Striped skunk, *Mephitis mephitis*

Coyote, *Canis latrans*

## Scavengers and Decomposers

Bacteria

Fungi

Protozoa

Termites

Spring-tails

Millipedes

Carpenter ants

Sow bugs

Centipedes

Earthworms

Wood boring beetles

## Primary and Secondary Consumers

White-breasted nuthatch, *Sitta carolinensis*

## **Brushland**

### **Producers (Coastal Sage Scrub)**

California sagebrush, *Artemisia californica*

Black sage, *Salvia mellifera*

Bush monkeyflower, *Mimulus aurantiacus*

Polson oak, *Toxicodendron diversilobum*

Coyote brush, *Baccharis pilularis* var.  
*consanguinea*

Bush poppy, *Dendromecon rigida*

Redberry, *Rhamnus crocea*

Coffeeberry, *Rhamnus californica*

Arroyo del la Cruz manzanita, *Manzanita*  
*cruzensis*

Pecho manzanita, *Arctostaphylos*  
*pechoensis*

Morro Bay manzanita, *Arctostaphylos*  
*morroensis*

### **Producers (Dune Chaparral)**

Chemise, *Ademostoma fasciculatum*

Deer weed, *Lotus scoparius*

Buckbrush, *Ceanothus cuneatus* var.  
*fascicularis*

Holly-leaf cherry, *Prunus ilicifolia*

Toyon, *Heteromeles arbutifolia*

Morro Bay manzanita, *Arctostaphylos*  
*morroensis*

Sand almond, *Prunus fasciculata* var.  
*punctata*

### **Producers (Dune Oak Scrub)**

Dwarfed coast live oak, *Quercus agrifolia*

Buckbrush, *Ceanothus cuneatus* var.  
*fascicularis*

Sand almond, *Prunus fasciculata* var.  
*punctata*

Morro Bay manzanita, *Arctostaphylos*  
*morroensis*

### **Producers (Huckleberry Scrub)**

Huckleberry, *Vaccinium ovatum*

Bracken fern, *Pteridium aquilinum* var.  
*pubescens*

Wood fern, *Dryopteris* sp.

### **Producers (Mixed Chaparral)**

Toyon, *Heteromeles arbutifolia*

Chamise, *Ademostoma fasciculatum*

Manzanita, *Manzanita* sp.

Ceanothus, *Ceanothus* sp.

Whispering bells, *Emmenanthe penduliflora*

Wind poppy, *Papaver californicum*

Santa Lucia mallow, *Malacothamnus*  
*palmeri*

Indian knob mountain balm, *Eriodictyon*  
*altissimum*



**Primary Consumers**Mourning dove, *Zenaida macroura*House finch, *Carpodacus mexicanus*Lesser goldfinch, *Carduelis psaltria*Brush mouse, *Peromyscus boylii*Parasitic mouse, *Peromyscus californicus*Dusky-footed woodrat, *Neotoma fuscipes*Black-tailed jackrabbit, *Lepus californicus*Brush rabbit, *Sylylagus bachmanni*Black-tailed deer, *Odocoileus hemionus***Secondary Consumers**

Spiders

Southern alligator lizard, *Gerrhonotus multicarinatus*Western fence lizard, *Sceloporus occidentalis*Coast horned lizard, *Phrynosoma coronatum*Western terrestrial garter snake, *Thamnophis elegans*Gopher snake, *Pituophis melanoleucus*Western rattlesnake, *Crotalus viridis*Common kingsnake, *Lampropeltis gettulus*Bushtit, *Psaltriparus minimus*Common poorwill, *Phaelaenoptilus nuttallii*Bewick's wren, *Thryomanes bewickii*House wren, *Troglodytes aedon*Say's phoebe, *Sayornis saya*Orange-crowned warbler, *Vermivora celata*Yellow-rumped warbler, *Dendroica coronata*Ash-throated flycatcher, *Myiarchus cinerascens*Loggerhead shrike, *Lanius ludovicianus*Red-tailed hawk, *Buteo jamaicensis*Buteo Cooper's hawk, *Accipiter cooperi*Sharp-shinned hawk, *Accipiter striatus*American kestrel, *Falco sparverius*Prairie falcon, *Falco mexicanus*Golden eagle, *Aquila chrysaetos*Barn owl, *Tyto alba pratincola*Great horned owl, *Bubo virginianus*Big brown bat, *Eptesicus fuscus*California bat, *Myotis californicus*Bobcat, *Lynx rufus*Badger, *Taxidea taxus*Mountain lion, *Felis concolor***Primary and Secondary Consumers**

Ants

Anna's hummingbird, *Calypte anna*Rufous hummingbird, *Selasphorus rufus*

Allen's hummingbird, *Selasphorus sasin*

Rufous-crowned sparrow, *Aimophila ruficeps*

Sage sparrow, *Amphispiza belli*

Fox sparrow, *Passarella iliaca*

Golden-crowned sparrow, *Zonotrichia atricapilla*

White-crowned sparrow, *Zonotrichia leucophrys*

Lincoln's sparrow, *Melospiza lincolnii*

Lazuli bunting, *Passerina amoena*

Dark-eyed junco, *Junco hyemalis*

Hermit thrush, *Catharus guttatus*

California quail, *Lophortyx californicus*

California thrasher, *Toxostoma redivivum*

Wrentit, *Chamaea fasciata*

Brown towhee, *Pipilo fuscus*

Northern mockingbird, *Mimus polyglottos*

Scrub jay, *Aphelocoma coerulescens*

American crow, *Corvus brachyrhynchos*

Common raven, *Corvus corax*

Rufous-sided towhee, *Pipilo erythrophthalmus*

Northern flicker (red-shafted), *Colaptes auratus cater*

Striped skunk, *Mephitis mephitis*

Raccoon, *Procyon lotor*

Ringtail, *Bassariscus astutus*

Gray fox, *Urocyon cinereoargenteus*

Coyote, *Canis latrans*

## Scavengers

Turkey vulture, *Catartes aura*

## Decomposers

Bacteria

Fungi

Earthworms

Isopods

Millipedes

## Grassland

### Producers

### Annual Introduced grasses

Slender wild oat, *Avena barbata*

Wild oat, *Avena fatua*

Soft chess, *Bromus mollis*

Foxtail, *Hordeum leporinum*

Filaree, *Erodium cicutarium*

### Native Grasses

Purple needlegrass, *Stipa pulchra*

Pine bluegrass, *Poa scabrella*

Few-flowered melic, *Melica imperfecta*

### **Native Wildflowers**

Clarkia spp.

Goldfields, *Lasthenia chrysostoma*

Bird's eye gilia, *Gilia tricolor*

Brodiaea, *Brodiaea* spp.

Mariposa lily, *Calochortus* spp.

### **Primary Consumers**

Cicada, Cicadidae Family

Field cricket, *Gryllus* spp.

Grasshoppers

White-lined sphinx moth, *Celerio lineata*

Swallowtail butterfly, *Papilio* spp.

Mourning dove, *Zenaida macroura*

American goldfinch, *Carduelis trisis*

Lesser goldfinch, *Carduelis psaltria*

Black-tailed jackrabbit, *Lepus californicus*

California ground squirrel, *Spermophilus beecheyi*

Black-tailed deer, *Odocoileus hemionus*

### **Secondary Consumers**

Spiders

Western fence lizard, *Sceloporus occidentalis*

Southern alligator lizard, *Gerrhonotus multicarinatus*

Gopher snake, *Pituophis melanoleucus*

Western rattlesnake, *Crotalus viridis*

Common kingsnake, *Lampropeltis gettulus*

Western bluebird, *Sialia mexicana*

Say's phoebe, *Sayornis saya*

Loggerhead shrike, *Lanius ludovicianus*

Barn owl, *Tyto alba pratincola*

Burrowing owl, *Athene cunicularia*

Red-tailed hawk, *Buteo jamaicensis*

Northern harrier, *Circus cyaneus*

Black-shouldered kite, *Elanus caeruleus*

American kestrel, *Falco sparverius*

Prairie falcon, *Falco mexicanus*

Golden eagle, *Aquila chrysaetos*

Vagrant shrew, *Sorex vagrans*

Bobcat, *lynx rufus*

American badger, *Taxidea taxus*

### **Primary and Secondary Consumers**

Ants

Lark sparrow, *Chondestes grammacus*

White-crowned sparrow, *Zonotrichia*

*leucophrys*

Horned lark, *Eremophila alpestris*

Brewer's blackbird, *Euphagus cyanocephalus*

Western meadowlark, *Sturnella neglecta*

American crow, *Corvus brachyrhynchos*

Harvest mouse, *Reithrodontomys megalotis*

Striped skunk, *Mephitis mephitis*

Gray fox, *Urocyon cinereoargenteus*

Coyote, *Canis latrans*

## **Decomposers**

Bacteria

Fungi

Earthworms

Isopods

Millipedes

## **Scavengers**

Turkey vulture, *Catartes aura*

# APPENDIX F: MORRO BAY MUSEUM OF NATURAL HISTORY SCOPE OF COLLECTIONS STATEMENT

## Morro Bay Museum of Natural History

### Scope of Collections Statement

Prepared By

**Kim Whiteside, Chair, Curatorial committee**

**DECEMBER 2012**

Note: This Scope of Collections was reviewed and approved by the Morro Bay Museum of Natural History curatorial committee in June 2012 and is recommended to the California Department of Parks and Recreation for approval.

Approved By: Rouvaishyana

Date: Dec. 19.2012

Museum Manager

Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

Sector Superintendent/Museum Director

Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

Deputy Director for Park Operations or District Superintendent

State of California

Department of Parks and Recreation

## **Introduction**

The Morro Bay Museum of Natural History opened in 1962, and continues to be the only natural history museum in the California State Park System. The museum is located on a bluff overlooking the Morro Bay Estuary, one of California's best examples of a healthy wetland ecosystem; consequently the estuary is protected and monitored by the National Estuary Program. The estuary is a stop for migratory birds, a nursery ground for marine fish, and provides an abundance of nutrients to support a diversity of flora and fauna. The marine habitats encompassed by the estuary include sand dunes, mudflats, salt marshes, sandy and rocky beaches, eelgrass beds, and just outside the bay the surrounding area provides healthy subtidal kelp beds and open ocean environments. The terrestrial components of the estuary are no less diverse with pine and willow/cottonwood forests; oak woodlands, grasslands, lichen fields; coastal chaparral and riparian habitats dominating the region and providing a home for many species of animals and plants. The area is also rich geologically; visitors can hike the nearby morros, volcanic plugs of extinct and eroded volcanoes, which also provide habitat to plant and animal life. The area's unique confluence of habitats makes the area an ideal location for studying and experiencing the interface between land and sea.

The museum is situated near Highway 1 in Morro Bay, San Luis Obispo County, California; across the street from the Morro Bay Golf Course and the Morro Bay State Park Campground and is located near Morro Bay harbor. The museum proper boasts panoramic views of the local hills, estuary and open coast areas. The interpretive displays within the museum were planned to bring the outdoors in by creating an experience for visitors in which they can view, up close, prepared specimens of the organisms they will see outside, and also provide the viewing areas for patrons to observe the living individuals in their environment with interpretation by displays and docents available during the entire experience. The museum hosts approximately 50,000 visitors a year from all over the world. The museum provides residents and guests to the area a variety of educational opportunities including: a weekly lecture series in the winter called Mind Walks; guided nature walks which are offered regularly throughout each month; puppet shows; school group programs on such topics as marine mammals, the estuarine ecosystem, the Native American people, and local bird populations; and special campground programs and community events. Approximately 4,000 children and young adults participate in the school group programs (K-college & university level students) offered at no charge by Docents and staff. The museum itself provides the public with exhibits that focus on the natural history and diversity of Central Coast flora and fauna, as well as introducing them to the current and historical culture and heritage of the peoples of the area.

## **Brief Description of Collections**

The collections of the Morro Bay Museum of Natural History include both a reserve and an interpretive collection. Collections date from prior to opening of the Museum, and the process continues to the present day. Many local sites are represented, with some material coming from localities as far as Asia. The collections include pressed plants and marine algae, lichen, marine invertebrates, insects, fish and sharks, amphibians and reptiles, bird mounts, bird nests and eggs, mammal mounts and pelts, rocks and minerals, fossils and Native American artifacts. The reserve collection is available internally to park Docents and staff for use in exhibits or programs within the museum or other sites, which include the Pismo Nature Center, Coastal Discovery Center

at San Simeon, and Montana de Oro's Spooner Ranch House; however these specimens are not to be handled by visitors and should remain in protective cases. Researchers, educators, and interested parties from the community may examine reserve specimens by appointment. The Archaeological (Native American) collection is presently unavailable to the public and should only be used by park staff and Docents in exhibits if prior approval is obtained from the California State Park District Archaeologist, Elise Wheeler. The Interpretive collection, which has been the principal focus of the museum, is available to interested parties with museum manager or curator approval. The interpretive collection is regularly used by Rangers and Docents conducting educational programs for school groups and the general public and is housed separately from the reserve collection; these specimens remain in the museum or other state park facilities during programs. A portion of the collection has been designated for use in programs which take place outside of the museum such as campfire programs, nature walks and school visits. This smaller collection consists of a few select specimens that have been preapproved by the curatorial committee along with the museum manager for this purpose. Some modern replicas or models have been included with the interpretive collection and are labeled as such in the collections to avoid confusion.

Docent curators and local experts examined our collections during the latest inventory (2011-2012) and noticed that some of our collections lacked cohesion, and conflict with the museum's interpretive themes. The museum staff is currently looking to expand the current collections to better represent the diversity of species in the Morro Bay area and the surrounding counties. There is also a need for the de-accession of materials that are from outside of the county and country that do not support the interpretive themes of the museum or the goals of the curatorial committee.

### **Declaration of Purpose**

The purpose statement was written to encompass the mission, objective and goals of both the Morro Bay Museum of Natural History and Morro Bay State Park that pertain to our collections. The purpose of the Morro Bay Museum of Natural History collections is to preserve and perpetuate the species diversity and document the natural history of the local flora, fauna, and geology along the coast from the southern Santa Barbara County line to the northern Monterey County line, and inland throughout San Luis Obispo County and adjacent Kern County. The collection will be preserved for the education, appreciation and enjoyment of present and future generations. The interpretive collection is a direct extension of the educational programs at the museum, and thus will focus on providing specimens and objects that will aid park staff and Docents in the interpretation of the various natural resources in the area.

### **Planning documents used**

The following references were helpful in writing this Scope of Collections:

California State Parks (1986) Morro Bay State Park Resource Element. Resource Protection

Division. Natural Heritage Section, Cultural Heritage Section.

California State Parks (1987) Morro Bay State Park Interpretive Prospectus. Prepared by Mary

A. Helmich. Interpretive Planning Section, Office of Interpretive Services,  
Department of Parks and Recreation.

California State Parks (1987) Morro Bay State Park Interpretive Element. Prepared by  
Mary A.

Helmich. Interpretive Planning Section, Office of Interpretive Services,  
Department of Parks and Recreation.

California State Parks (1988) Morro Bay State Park Preliminary General Plan. State of  
California

The Resources Agency. Department of Parks and Recreation. Sacramento, Ca.

California State Parks (2001) Museum Collections Management Handbook Volumes I  
and II.

Edited by Patricia Morris. Museum Services Section. Cultural Resources Division.

California State Parks (2000) Guidelines for Writing a Scope of Collections Statement.  
California State Parks, Museum Services Section

California State Parks (2009) Guidelines for Writing a Scope of Collections Statement.  
California State Parks. Archaeology, History & Museums Division. March 2009

Docent Curatorial Committee (1986) Management Procedures for the Morro Bay State  
Park

Museum Collections. February 1986. Approved by NHA, Docent Council and State  
Parks and Recreation.

Morro Bay State Park Museum of Natural History (1990) Interpretive Renovation Plan.  
Part I-A.

The Docent Council Museum Task Force. San Luis Obispo Coast Area State Parks.  
Office of Interpretive Services. Prepared by Robert G. Hare

Morro Bay Museum of Natural History accession records

Morro Bay National Estuary Program. (1999) Conservation and Management Plan for  
Morro

Bay (Comprehensive Draft). Prepared by the Morro Bay National Estuary  
Program

Management Conference and Staff (Mooney M, Kropp K, Wilson R and Sutton D)  
with assistance from Battelle.

Morro Bay National Estuary (2000) Understanding the Morro Bay Estuary and  
watershed.

Prepared by Mooney M, Kropp K, Wilson R, Paradies D, White A, and Sutton D



## Program.

Museum Collections Facility Index (MCFI)

Native American Artifacts (internal information sheet)

### **People consulted**

- Elise Wheeler, California State Parks District Archaeologist
- Dave Dabritz, MBMNH park Docent and volunteer curator of the skulls and bones collection
- Priscilla Akin, MBMNH Docent and volunteer curator of the marine invertebrate collection
- Robert Campbell, MBMNH volunteer curator of the entomology collection
- Jerry Kirkhart, MBMNH docent and volunteer curator of the ornithology collection
- Ben & Roz Pollard, MBMNH volunteer curators of the geology collection
- Rouvaishyana, State Park Interpreter II, Museum Manager
- Morro Bay Unit members
- Docent Council members
- Central Coast State Parks Association (CCSPA)

### **Major interpretive themes, topics and/or time periods of the collection**

The park interprets the history of Morro Bay State Park from geologic history to present. The overall or unifying interpretive theme is to “Explore how natural forces, plants, animals, and people interact daily to change this dynamic and fragile coast.” [New themes are being developed for the Interpretive Master Plan, in progress.] The major interpretive themes for the museum focus on the ever changing coast with emphasis on celestial, geologic, hydrological, meteorological and biologic processes that shaped it; the evolution, adaptation, and interdependency of living organisms that inhabit local environments; the unique plant and animal species within the park such as the local and migratory bird populations, resident marine mammals and migrating whales, transient mammals, and uncommon or rare plants and animals that are special or indigenous to the park; the people that have populated and used the region beginning with the Native Americans, followed by the Spaniards, the rancho early settlers and the present users from late nineteenth century to the present, and lastly the environmental impacts of resource use and its ethical and environmental implications for the future. The goal of the collection is to provide specimens that will aid in the

interpretation of the museum themes and to provide a comprehensive record of local species diversity.

### **History of the collection**

The museum collection consists of collections made prior to 1962, when the Museum opened; gifts from the latter half of the twentieth century; and continuing donations. Most of the contributions to the collections were from individuals who have gifted one or more objects but a few sizable donations were presented to the museum. The archaeology collection had many objects donated by PG&E during a mitigation project in the 1970s. The largest invertebrate donations were acquired from Mr. Glen Bickford, whose collections include a large number of marine invertebrate shells, including a valuable collection of abalone shells. A large number of liquid specimens were also donated to the invertebrate collection after the completion of a baseline study of organisms at Hazard Cove in Montana de Oro State Park by Angelos, Bonds and Burns.

Current reorganization of all areas of the collection is being done by individuals with training or experience in the particular field, using the most current reference books as guides.

### **Collection content summary**

#### Archaeology Collection (currently managed by Elise Wheeler, District Archaeologist)

The Archaeology Collection consists of approximately 400 Native American artifacts mostly from the Chumash people and has been considered one of the finest Chumash collections in the State of California. In previous years the collection was studied and photographed by archaeologists; due to its significance the collections has been deemed irreplaceable. Most of the materials are either tools or jewelry, with a few woven items such as baskets included in the collection. The archaeological items are generally unavailable for use, but a portion of the collection may be used for display as part of a planned exhibit with the approval of the district archaeologist. School group programs use replicas for demonstrations. In the past items have been stolen; currently all of the items are properly locked and stored in storage units to prevent any further damage to artifacts or losses to the collection. A new inventory will be completed sometime in the coming year and sent to Elise Wheeler.

#### Marine Invertebrate Collection (currently managed by Priscilla Akin, curatorial volunteer and docent) section written by Priscilla Akin

As of March 2012, the Marine Invertebrate Collection has approximately 440 specimens remaining after eliminating the duplicates in the count. Duplicates will be maintained in the Teaching and Docent collections and are not discarded. The Mollusca are very well represented and form the bulk of the collection, common Arthropods and Echinoderms are somewhat less represented. We do not have a good representation of local Cnidaria, Porifera and Coelenterates yet. However, a number of these may be in the samples donated by Faylla Chapman and have not yet been incorporated into the collection. For the future I see a much more comprehensive collection representing common and uncommon species and different habitats from estuary to rocky tide

pools, sandy beaches and even pelagic. The collection is housed in hall cabinets 6-11.

Entomology Collection (currently managed by Robert Campbell, curatorial volunteer)

The Entomology collection houses approximately 900 specimens; most of the collection is about 40 years old. Five percent of the current collection probably should be discarded; many of these potential discards are from outside the county. Infested specimens, which were not accessioned, have already been eliminated from the collection. In order to make the collection representative of the local flora and fauna we would require a doubling of the current collection.

Ornithology Collection (currently managed by Jerry Kirkhart, curatorial volunteer and museum docent)

The Ornithology collection consists of approximately ~800 specimens; the collections include both live mounts and study skins. Several live mounts are on permanent display in the museum, and many more are periodically rotated seasonally for display near the large windows near the Museum back desk. At present the study skins are rarely used but provide an invaluable study collection for researchers interested in local bird biodiversity. Most of the specimens are in good condition, but a routine maintenance schedule for cleaning needs to be implemented.

Nest & Egg Collection (currently looking for a curator for this collection)

The nest and egg collection was taxonomically reorganized in 2009 by Rouvaishyana (museum manager) and several museum docents. The collection is very well representative; we have more items that were donated after this reorganization that still need to be evaluated for inclusion in the collection. This collection has been used during the annual Bird Festival; it should be noted that when volunteers use the collection they should keep the records with the specimens.

Mammal Collection (currently looking for a curator for this collection; Emmie Nieman does most of the repair and maintenance on this part of the collection)

The mammal collection houses approximately 200 live mounts and study skins. This collection is very valuable because of the inherent nature of artistry involved in taxidermy. Mammals along with bird specimens are often our most used specimens and are checked out for school group or ranger programs. Most of our specimens are in good condition, but the necessary maintenance has not been consistently done due to limited staffing in previous years, and to limited freezer space. A maintenance schedule needs to be implemented. A few specimens need to be replaced, for instance there is need for a new opossum mount. The otter study skins are also used regularly and need to be cleaned before the next season in order to minimize damage to the skins. Taxonomic reorganization is underway.

Herpetology Collection (currently managed by Dr. Norman Scott, curatorial volunteer)

This is our smallest collection. There are approximately 30 specimens, and the collection needs to be more representative of the local fauna. In order to create a useful collection some collection must be completed and more storage space found. It

is suggested that we attempt to trade with other museums as our primary means of increasing our collection.

Ichthyology Collection (currently managed by Dr. John Stephens, curatorial volunteer)

A number of specimens in liquid preservative have been added to this collection in 2012, bringing our total number of specimens to over 200. It is fairly representative of local fish fauna. This part of the collection has recently been moved out of a cabinet shared with the Herpetology collection, and is in the process of being sorted and organized.

Skull & Bone Collection (currently managed by Dave Dabritz, curatorial volunteer and docent) section written by Dave Dabritz

This year the skull & bone collection was reorganized taxonomically to make it more user friendly. There are currently 225 useful specimens and parts, of these 107 are not accessioned into the collection. Some of these un-accessioned items will not be added to the collection but will be used in school groups or if duplicated given to Pismo or Montana de Oro. The collection needs to be expanded to acquire representative samples of all SLO Coastal area families of mammals (Rodentia, Lagomorpha, Artiodactyla, and Mustelidae), reptiles, amphibians, birds and marine mammals. Skulls and at least some other distinctive bones (forelimb) of domestic animals for comparison would also be helpful as many people have not seen these. We currently have a few bones of pet and farm animals.

Herbarium Collection (is currently managed by Kim Whiteside, curatorial volunteer and docent)

The herbarium collection is currently being inventoried; it consists of seaweeds, fungi and vascular plant specimens. There are approximately 600 specimens listed in the electronic database, 92 of these being laminated seaweeds used in school programs. The herbarium collection looks to be in good to excellent condition and seems to represent the species diversity of the area well; however some recent floral additions and rare species are lacking from the collection. I would also suggest that we train volunteers in the use of the collections so as to decrease breakage of the specimens during their use. Many of the drawers in the cabinet where the specimens are stored are full and therefore it is suggested that another drawer or two be added to the top of the cabinet so that stacking of large numbers of herbarium sheets does not occur. I also suggest that the mammal and insect specimens be removed from the top portion of the cabinet and put in with the proper collections.

Geology & Fossil Collection (currently managed by Ben and Roz Pollard, curatorial volunteers) section written by Ben and Roz Pollard

The geology and fossil collection had been in disarray for several years with additions put into the collection drawers but without proper recording or organizing. Currently, the total number of mineral, rock and fossil specimens in the current collection is approximately 2200. Of these, 940 store-bought (exotic) specimens have been recorded in our computerized data base.

Some of these un-accessioned specimens will need to be discarded. The number of specimens to be eliminated varies depending on decisions yet to be made, but the current Scope of Collections provides valuable guidelines.

The collection appears to be lacking specimens of some locally common rock types, including some that are historically valuable. An additional 100 such specimens might be needed to complete the mineral and rock collection. Hundreds more specimens might be needed for a more comprehensive fossil collection. Only about 10 to 20 percent of the collection comes from local sources or represents mineral, rock or fossil types occurring in the county. Looked at that way, most of the collection is unrepresentative of our area, but it nonetheless contains a number of interesting and potentially valuable components.

### **Uses of the collection**

A majority of the collections are used in the museum proper or at Spooner Ranch in Montana de Oro, San Simeon Discovery Center or Pismo Beach's Nature Center. The collections are mainly used for display or interpretation. A portion of the collection is on reserve and is used in the museum only, with few exceptions. The interpretive collection is used by docents, Rangers or other volunteer personnel. Temporary loans have been made to other museums such as the SLO Children's Museum and the Santa Maria Natural History Museum. Longer term loans are often completed between park institutions with the museum manager's approval.

### **Relationship of your unit's collections to other State Parks collections and to other non-State Park institutions**

Since the Morro Bay Natural History Museum is the only natural history museum in the State Park system we are often the supplier of natural history specimens for some of the local state park interpretive centers. The closest natural history museums are to our south. We are regularly in contact with the Santa Barbara Museum of Natural History (100 miles away) and the Santa Maria Natural History Museum (46 miles away). The Santa Barbara MNH and our museum share many interpretive themes and many educational programs are correlated; thus we have developed a very strong relationship with the museum. In fact, our curatorial staff is composed of volunteer docents with strong interests in the collections they manage, but unlike the Santa Barbara MNH we are not all subject matter specialists. As such we sometimes rely on the scientific staff at Santa Barbara to aid our docents in identification, or to suggest curatorial methods. Our Geology curators are in contact with staff at the State Mining & Mineral Museum. Although there is much overlap between our compatriot museums to the south our museum focuses on collections that represent the local flora, fauna and geology of the Morro Bay estuary, the surrounding outer coastal environments, and the local terrestrial habitats.

### **Collection development goals (recommended acquisitions, deaccessions and transfers)**

#### Recommended priorities for acquisition

All of the collections are undergoing a massive reorganization at the moment.

Volunteer staff is working hard to organize specimens taxonomically and in the process they are examining the contents of the collections to determine whether the current collection fulfills the needs of the museum. We are striving to have a collection that represents the central coast flora and fauna and its unique geologic history. We consider it valuable to have representative specimens from the county at large, and more broadly within the geographic scope defined herein. A limited collection of specimens from outside of the county or country will be retained for comparative purposes, which will be useful in interpretation. New acquisitions will be accepted based on these needs.

At times donations are acquired from the general public, amateur and professional naturalists, the Department of Fish and Game, other agencies, and occasionally voucher specimens are received from scientific or mitigation studies. Purchases of specimens are generally not done at this museum. Any person with an exceptional piece should, however, be directed to the museum manager. Although it is unlikely we will enter into such a transaction, one of our affiliate institutions may be interested and the manager will be able to redirect the person.

In acquiring specimens the museum is obligated to proceed legally and ethically; therefore, it is important that staff only accept specimens that were collected by donors where consideration to collection method, natural population density, locality significance and natural habitat disturbance were taken into account. The museum does not want to encourage patrons to collect for our sake, nor will the museum allow volunteer curators or staff to collect without consideration to the above criteria. Collecting should be done within the laws established by federal, state, and local governments.

California: <http://www.dfg.ca.gov/licensing/specialpermits/>

Federal: <http://www.fws.gov/permits/overview/overview.html>

Consideration should also be given the Endangered species act and for the Archaeology collection. No material shall be taken that violates the Native American Grave Protection and Repatriation Act (NAGPRA).

The limited availability of storage space and the need for a cohesive and representative collection necessitate a restrictive acquisitions policy.

#### Recommended deaccessions & transfers

Most of our collections undergoing reorganization will have material that needs to be deaccessioned or is made available for transfer to other institutions. It is the policy to keep material if it meets criteria, but material that is badly damaged or does not represent the biological and geologic diversity of our area or aid in interpretation shall be either deaccessioned or offered to another museum. For example, material from out of the geographic range or country that is of museum quality and has provenance should be first be offered to a museum or facility that would find use for it. Material that is broken or in poor condition such that de-accessioning is recommended should be offered for use in school group programs, and if there is no use for it; should be disposed of properly. Duplicate or unnecessary material should be used in collections that will be

made available for school groups as collections to regularly borrow from or as kits to be checked out.

## **Collections management goals**

### Incoming Objects

Objects accepted by the museum should be material that is considered as a donation to the museum and after acceptance becomes property of the museum. If long term loans are to be accepted they must be approved by the museum manager. All incoming objects should be cataloged within a few weeks of their acquisition. Keeping accurate records of the objects in our collection is very important and allows staff and docents to be aware of useful interpretive objects. Staff accepting new objects should insure that the material is accompanied by records establishing the provenance of the object. Records should include the following information: date the object was collected, the locality it was collected from, latitude and longitude if available, notes on any specimen preparation, and permit information. Other suggested fields of information can be found on the specimen check-in card that is to be filled out at the time of specimen acceptance. Material should be readily identifiable and intact; partial specimens that may be used for demonstration purposes may also be accepted on a limited basis. If reproductions (“artifakes”) are accepted, this should be clearly indicated on the check-in sheet to avoid confusion.

### Cataloging and documentation

Specimen catalog files and accession books are housed in the curatorial basement; however much of this information has been entered into a database for easier access. Although statewide museum collections data has moved to a digital format, all previous paper-based records will be maintained and a yearly inventory list will be printed out and added to the files. The updated electronic files will be kept on a museum computer; two disc copies will be kept, one to be placed in the curatorial handbook & inventory binder and the second given and stored with the museum manager; and lastly the database will be sent to be uploaded into the State MUSEUM System (TMS).

### Check-out procedures

Specimens in the interpretive collection may be checked out for a period of 48 hours. This ensures they are returned in a timely manner and available for others to use in their programs. Longer term use must be approved by the docent curator chair or museum manager. Check-out procedures can be found in the curator handbook. All specimens should be signed out on the check-out log sheet in the binder on the curatorial desk. When an item is removed from the shelf it should be replaced with a card on which the common name of the item and the catalog number should be written. This procedure will help staff return items to their proper place upon return.

### Conservation

One of the goals of the curatorial committee is to create a maintenance protocol and schedule for the cleaning and repair of museum specimens and objects. Inventory

and regular maintenance have been consistent since 2005, but not necessarily prior to that. Rare or irreplaceable objects should be carefully monitored regularly to insure they remain protected from the elements and pests. The annual MCFI (Museum Collections Facility Inventory) is an important step in documenting safety of the collections.

### Storage & Security

Specimens not on display or in the reserve collection are housed in the cabinets and storage units in the basement of the building. Cabinets and storage units in the curatorial area remain locked when not in use to protect against theft and are only opened by trained museum staff members. There is a separate door to get into the curatorial area, which is often locked unless being used or kept open for ventilation purposes. Much of the interpretive collection used regularly by the educational docents is kept in a separate room next to the Learning Center, a classroom in the Museum basement. All objects are kept in cabinets. Specimens on permanent or temporary display in cases upstairs are locked at all times and natural history objects on open display are under the watchful eye of museum volunteers and docents. Curatorial docents perform work with the collections during normal business hours or during other preapproved times as needed, and are always under the guidance of State Park staff.

Currently, the maintenance and inventory of the educational collection in the school group room is handled by school docents. It is important that a member of this staff report regularly to the curatorial committee on the condition and the needs of the collection.

### Environmental conditions

Our facility is located on a bluff just above the bay, so humidity is a consideration. We have a dehumidifier and a fan in the Storage Unit room. A moisture absorbing product (Damp Rid) is placed in the cabinets and storage units with mounts or skins. The Damp Rid is replaced every few months by volunteers. All cabinets and storage units are kept closed to keep the elements from direct contact with specimens. Several of the more delicate specimens have been placed into glass or Plexiglas cases to further protect them from the elements.

The bluff on which the museum is situated is made of granite and therefore our less ventilated areas are monitored by a radon detector. When radon levels in the curatorial area or the library reach levels greater than 4.0 pCi/L docents are to refrain from working in the area for extended periods of time and should heed all warning signs posted by park staff; as a few times a year it may not be safe to remain in the basement for longer than brief forays.

Much of the collection has been free from pests, but the insect collection has shown some signs of infestation, and mold was a problem in the past on bird feet. These problems have been substantially resolved. Infested material was treated using the freezer; material that wasn't accessioned but badly damaged was burned or discarded with Sector Superintendent approval.



A Pocket Response Plan (PRP) has been created in case of emergency and a spill kit in case of hazardous contamination is located in the Curatorial lab/office next to the chest freezer. There is also a water spill kit located in the Museum library. Current docents have been trained in the use of the spill kits. As the kits and PRP were assembled in the last 2 years, periodic review will be implemented.



## APPENDIX G: MUSEUM RESTORATION PLAN INTERPRETIVE GUIDELINES

- Get and hold the visitor’s attention;
- Focus on the immediate area;
- Entice visitors to explore new places;
- Provoke visitors to entertain new ideas and questions;
- Inspire visitors to perceive the Coast as an ever-changing complex of forces, materials, and life forms;
- Arouse curiosity and enthusiasm for nature and its processes;
- Give visitors a way of applying or testing their new insights;
- Touch people’s lives;
- Engage people’s feelings, senses, and skills as well as their minds;
- Be light-hearted;
- Meet different levels of knowledge, interest, time, and abilities;
- Provide visitors with a “thematic map” of their interpretive experience so they can better understand and retain the ideas presented;
- Avoid wordiness or overwhelming visitors with information;
- Use facts to reveal universal concepts and processes;
- Relate particulars to general principles;
- Relate land and sea processes;
- Reveal relationships between the resource and the visitor;
- Promote an understanding of the integrity, interrelatedness, and fragility of ecological systems



## APPENDIX H: HISTORY-SOCIAL SCIENCE CONTENT STANDARDS

As of 2013, there is no equivalent to Common Core or Next Generation Science standards with the social sciences. Although some educators expect that this may change within the next decade, for the foreseeable future, California will continue to teach social sciences according to the academic standards established in 1998. These standards emphasize historical narrative, highlight the roles of significant individuals throughout history, and convey the rights and obligations of citizenship.

Mastery of these standards means that students not only know the facts, but also understand common and complex themes throughout history, making connections among their own lives, the lives of the people who came before them, and the lives of those to come. As with other subjects, Morro Bay State Park is well suited to bring context to these sometimes abstract topics. The following standards could be met through programs offered by Morro Bay State Park.

Historical and Social Sciences Analysis Skills

### History-Social Science Content Standards: Kindergarten Through Grade Five.

#### KINDERGARTEN

#### History-Social Science Content Standards

Learning and Working Now and Long Ago

#### **K.1 Students understand that being a good citizen involves acting in certain ways.**

1. Follow rules, such as sharing

and taking turns, and know the consequences of breaking them.

#### **K.4 Students compare and contrast the locations of people, places, and environments and describe their characteristics.**

1. Determine the relative locations of objects using the terms near/far, left/right, and behind/in front.
2. Distinguish between land and water on maps and globes and locate general areas referenced in historical legends and stories.

#### **K.6 Students understand that history relates to events, people, and places of other times.**

1. Understand how people lived in earlier times and how their lives would be different today (e.g., getting water from a well, growing food, making clothing, having fun, forming organizations, living by rules and laws).

#### Grade One

#### **1.2 Students compare and contrast the absolute and relative locations of places and people and describe the physical and/ or human characteristics of places.**

1. Compare the information that can be derived from a three-dimensional model to the information that can be derived from a picture of the same location.
2. Construct a simple map, using cardinal directions and map symbols.
3. Describe how location, weather, and physical environment affect the way people live, including the effects on their food, clothing, shelter, transportation, and recreation.

## Grade Two

N/A

## Grade Three

### History-Social Science Content Standards.

#### 3.1 Students describe the physical and human geography and use maps, tables, graphs, photographs, and charts to organize information about people, places, and environments in a spatial context.

1. Identify geographical features in their local region (e.g., deserts, mountains, valleys, hills, coastal areas, oceans, lakes).
2. Trace the ways in which people have used the resources of the local region and modified the physical environment (e.g., a dam constructed upstream changed a river or coastline).

#### 3.2 Students describe the American Indian nations in their local region long ago and in the recent past.

1. Describe national identities, religious beliefs, customs, and various folklore traditions.
2. Discuss the ways in which physical geography, including climate, influenced how the local Indian nations adapted to their natural environment (e.g., how they obtained food, clothing, tools).
3. Describe the economy and systems of government, particularly those with tribal constitutions, and their relationship to federal and state governments.
4. Discuss the interaction of new settlers with the already established Indians of the region.

#### 3.3 Students draw from historical and community resources to organize the sequence of local historical events and describe how each period of settlement left its mark on the land.

1. Research the explorers who visited here, the newcomers who settled here, and the people who continue to come to the region, including their cultural and religious traditions and contributions.
2. Describe the economies established by settlers and their influence on the present-day economy, with emphasis on the importance of private property and entrepreneurship.
3. Trace why their community was established, how individuals and families contributed to its founding and development, and how the community has changed over time, drawing on maps, photographs, oral histories, letters, newspapers, and other primary sources.

#### 3.5 Students demonstrate basic economic reasoning skills and an understanding of the economy of the local region.

1. Describe the ways in which local producers have used and are using natural resources, human resources, and capital resources to produce goods and services in the past and the present.
2. Understand that some goods are made locally, some elsewhere in the United States, and some abroad.
3. Understand that individual economic choices involve trade-offs and the evaluation of benefits and costs.

**Grade Four****4.2 Students describe the social, political, cultural, and economic life and interactions among people of California from the pre-Columbian societies to the Spanish mission and Mexican rancho periods.**

1. Discuss the major nations of California Indians, including their geographic distribution, economic activities, legends, and religious beliefs; and describe how they depended on, adapted to, and modified the physical environment by cultivation of land and use of sea resources.
2. Identify the early land and sea routes to, and European settlements in, California with a focus on the exploration of the North Pacific (e.g., by Captain James Cook, Vitus Bering, Juan Cabrillo), noting especially the importance of mountains, deserts, ocean currents, and wind patterns.
3. Describe the Spanish exploration and colonization of California, including the relationships among soldiers, missionaries, and Indians (e.g., Juan Crespi, Junipero Serra, Gaspar de Portola).
4. Describe the mapping of, geographic basis of, and economic factors in the placement and function of the Spanish missions; and understand how the mission system expanded the influence of Spain and Catholicism throughout New Spain and Latin America.
5. Describe the daily lives of the people, native and nonnative, who occupied the presidios, missions, ranchos, and pueblos.
6. Discuss the role of the Franciscans in changing the economy of California from a hunter-gatherer economy to an

agricultural economy.

7. Describe the effects of the Mexican War for Independence on Alta California, including its effects on the territorial boundaries of North America.
8. Discuss the period of Mexican rule in California and its attributes, including land grants, secularization of the missions, and the rise of the rancho economy.

**4.4 Students explain how California became an agricultural and industrial power, tracing the transformation of the California economy and its political and cultural development since the 1850s.**

1. Discuss the effects of the Great Depression, the Dust Bowl, and World War II on California.

**Grade Five**

N/A

In addition to the standards for kindergarten through grade five, students demonstrate the following intellectual, reasoning, reflection, and research skills:

**Chronological and Spatial Thinking**

1. Students place key events and people of the historical era they are studying in a chronological sequence and within a spatial context; they interpret time lines.
2. Students correctly apply terms related to time, including past, present, future, decade, century, and generation.
3. Students explain how the present is connected to the past, identifying both similarities and differences between the two, and how some things change over time and some things stay the

same.

4. Students use map and globe skills to determine the absolute locations of places and interpret information available through a map's or globe's legend, scale, and symbolic representations.
5. Students judge the significance of the relative location of a place (e.g., proximity to a harbor, on trade routes) and analyze how relative advantages or disadvantages can change over time.

### **Research, Evidence, and Point of View**

1. Students differentiate between primary and secondary sources.
2. Students pose relevant questions about events they encounter in historical documents, eyewitness accounts, oral histories, letters, diaries, artifacts, photographs, maps, artworks, and architecture.
3. Students distinguish fact from fiction by comparing documentary sources on historical figures and events with fictionalized characters and events.

### **Historical Interpretation**

1. Students summarize the key events of the era they are studying and explain the historical contexts of those events.
2. Students identify the human and physical characteristics of the places they are studying and explain how those features form the unique character of those places.
3. Students identify and interpret the multiple causes and effects of historical events.
4. Students conduct cost-benefit analyses of historical and current events.

## **Grade Six**

### **6.1 Students describe what is known through archaeological studies of the early physical and cultural development of humankind from the Paleolithic era to the agricultural revolution.**

1. Describe the hunter-gatherer societies, including the development of tools and the use of fire.
2. Identify the locations of human communities that populated the major regions of the world and describe how humans adapted to a variety of environments.
3. Discuss the climatic changes and human modifications of the physical environment that gave rise to the domestication of plants and animals and new sources of clothing and shelter.

## **Grade Seven**

N/A

## **Grade Eight**

N/A

Historical and Social Sciences Analysis Skills

History-Social Science Content Standards: Grades Six Through Eight.

The intellectual skills noted below are to be learned through, and applied to, the content standards for grades six through eight. They are to be assessed with the content standards in grades six through eight.



In addition to the standards for grades six through eight, students demonstrate the following intellectual reasoning, reflection, and research skills:

### **Chronological and Spatial Thinking**

1. Students explain how major events are related to one another in time.
2. Students construct various time lines of key events, people, and periods of the historical era they are studying.
3. Students use a variety of maps and documents to identify physical and cultural features of neighborhoods, cities, states, and countries and to explain the historical migration of people, expansion and disintegration of empires, and the growth of economic systems.

### **Research, Evidence, and Point of View**

1. Students frame questions that can be answered by historical study and research.
2. Students distinguish fact from opinion in historical narratives and stories.
3. Students distinguish relevant from irrelevant information, essential from incidental information, and verifiable from unverifiable information in historical narratives and stories.
4. Students assess the credibility of primary and secondary sources and draw sound conclusions from them.
5. Students detect the different historical points of view on historical events and determine the context in which the historical statements were made (the questions asked, sources used, author's perspectives).

### **Historical Interpretation**

1. Students explain the central issues and problems from the past, placing people and events in a matrix of time and place.
2. Students understand and distinguish cause, effect, sequence, and correlation in historical events, including the long- and short-term causal relations.
3. Students explain the sources of historical continuity and how the combination of ideas and events explains the emergence of new patterns.
4. Students recognize the role of chance, oversight, and error in history.
5. Students recognize that interpretations of history are subject to change as new information is uncovered.
6. Students interpret basic indicators of economic performance and conduct cost-benefit analyses of economic and political issues.

### **Grade 9**

N/A

### **Grade 10**

N/A

### **Grade 11**

#### **11.6 Students analyze the different explanations for the Great Depression and how the New Deal fundamentally changed the role of the federal government.**

1. Discuss the human toll of the Depression, natural disasters, and unwise agricultural practices and their effects on the depopulation of rural

regions and on political movements of the left and right, with particular attention to the Dust Bowl refugees and their social and economic impacts in California.

2. Analyze the effects of and the controversies arising from New Deal economic policies and the expanded role of the federal government in society and the economy since the 1930s (e.g., Works Progress Administration, Social Security, National Labor Relations Board, farm programs, regional development policies, and energy development projects such as the Tennessee Valley Authority, California Central Valley Project, and Bonneville Dam).

## **Grade Twelve**

### **Principles of Economics**

#### **12.1 Students understand common economic terms and concepts and economic reasoning.**

1. Examine the causal relationship between scarcity and the need for choices.
2. Explain opportunity cost and marginal benefit and marginal cost.
3. Identify the difference between monetary and non monetary incentives and how changes in incentives cause changes in behavior.
4. Evaluate the role of private property as an incentive in conserving and improving scarce resources, including renewable and nonrenewable natural resources.

## APPENDIX I: NEXT GENERATION SCIENCE STANDARDS

In 2013, California adopted the Next Generation Science Standards (NGSS). These national standards reflect what students should know and be able to do. Every NGSS standard has three dimensions: scientific and engineering practices, cross-cutting concepts, and disciplinary core ideas (content). Scientific and Engineering Practices and Crosscutting Concepts are designed to be taught in context – not in a vacuum. Numerous California State Parks, including Morro Bay State Park, are well positioned to provide this contextual setting.

### Dimension 1: Practices

Dimension 1 describes (a) the major practices that scientists employ as they investigate and build models and theories about the natural world and (b) a key set of engineering practices that engineers use as they design and build systems. Learning these practices is intended to be an inquiry-based approach, i.e. students will themselves engage in the practices and not merely learn about them secondhand.

### Dimension 2: Crosscutting Concepts

The crosscutting concepts have application across all domains of science. As such, they provide one way of linking across the domains in Dimension 3.

The NGSS identifies the following practices and cross cutting concepts. Those in bold could be addressed through a traditional school program. Those in italics could be addressed through the development of longer term citizen science programs done in collaboration with the schools.

Practices

- Asking Question and Defining Problems
- Developing and Using Models
- Planning and Carrying Out Investigations
- Analyzing and Interpreting Data
- Using Mathematics and Computational Thinking
- Constructing Explanations and Designing Solutions
- Engaging in Argument from Evidence
- Obtaining, Evaluating and Communicating Information

### Crosscutting Concepts

- Patterns
- Cause and Effect
- Scale, Proportion, and Quantity
- Systems and System Models
- Energy and Matter
- Structure and Function
- Stability and Change
- Interdependence of Science, Engineering and Technology
- Influence of Engineering, Technology and Science on Society and the Natural World

### Dimension 3: Disciplinary Core Ideas

The continuing expansion of scientific knowledge makes it impossible to teach all the ideas related to a given discipline in exhaustive detail during the K-12 years. Disciplinary core ideas help focus K-12 science curriculum, instruction and assessments on the most important aspects of science. To be considered core, the ideas should meet at least two of the

following criteria and ideally all four:

- Have broad importance across multiple sciences or engineering disciplines or be a key organizing concept of a single discipline;
- Provide a key tool for understanding or investigating more complex ideas and solving problems;
- Relate to the interests and life experiences of students or be connected to societal or personal concerns that require scientific or technological knowledge;
- Be teachable and learnable over multiple grades at increasing levels of depth and sophistication.

Disciplinary ideas are grouped in four domains: the physical sciences; the life sciences; the earth and space sciences; and engineering, technology and applications of science.

The following Disciplinary Core Ideas could be addressed through programs at Morro Bay State Park include:

Physical Sciences: N/A

Life Sciences

- LS2A: Interdependent Relationships in Ecosystems
- LS2B: Cycles of Matter and Energy Transfer in Ecosystems
- LS2C: Ecosystems Dynamics, Functioning and Resilience
- LS4B: Natural Selection
- LS4C: Adaptation
- LS4D: Biodiversity and Humans

Earth and Space Sciences

- ESS1.C: The History of Planet Earth

- ESS2.A: Earth Materials and Systems
- ESS2.B: Plate Tectonics and Large-Scale System Interactions
- ESS2.E: Biogeology
- ESS3A: Natural Resources
- ESS3C: Human Impacts on Earth Systems
- ESS3D: Global Climate Change

Engineering, Technology and Applications of Science: N/A

Lastly, the NGSS identifies performance expectations for each grade level. MBSP could help students meet the following performance expectations:

Kindergarten: Interdependent Relationships in Ecosystems: Animals, Plants, and Their Environment

K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive.

K-ESS2-2 Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.

K-ESS3-3. Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.

First Grade: N/A

Second Grade: Interdependent Relationships in Ecosystems

2-LS2-2: Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.

2-LS4-1: Make observations of plants and animals to compare the diversity of life in

different habitats.

### Third Grade: Inheritance and Variation of Traits: Life Cycles and Traits

3-LS1-1. Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.

3-LS3-1. Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms

3-LS3-2. Use evidence to support the explanation that traits can be influenced by the environment.

### 3. Interdependent Relationships in Ecosystems: Environmental Impacts on Organisms

3-LS4-3: Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

3-LS4-4: Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.

### Fourth Grade: Earth's Systems: Processes that Shape the Earth

4-ESS1-1. Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.

4-ESS2-2. Analyze and interpret data from maps to describe patterns of Earth's features.

### Fifth Grade: Earth's Systems

5-ESS2-1. Develop a model using an

example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.

5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

### Middle School: Human Impacts

MS-ESS3-4. Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

### High School:

### High School: Human Sustainability

HS-ESS3-1. Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.



## APPENDIX J: EEI CURRICULUM

The Education and Environment Initiative (EEI) Curriculum includes 85 units that teach California content standards in Science and History-Social Science to mastery for grades K-12. The Curriculum teaches standards through an environmental lens, including understanding resources, conservation, where our food, energy, and water come from, and complicated decision-making processes related to climate change, green chemistry, and use of public lands.

At the time of the publication of this document, the EEI curriculum was being assessed for its correlation to the Common Core and Next Generation Science standards. Upon implementing Educational project identified in the Action Plan, park staff should revisit the EEI webpage to confirm what Common Core standards can be addressed through EEI programming supported by the park.

In 2012, Morro Bay State Park identified the following EEI units as ones that could be taught at the park.

Grade 3:

Sci 3.3.c: Living Things in Changing Environments

1. The Salt Marsh Ecosystem

High School - Earth Science

Ocean Currents and Natural Systems

2. Ocean Water's Influence on the Distribution of Organisms

5. Marine Organism Distribution and Human Economies

High School - Biology

B.6.a.: Biodiversity: The Keystone to Life

on Earth

1. Biodiversity: Earth's Living Riches

B.8.a. Differential Survival of Organisms

5. Human Activities, Natural Factors and Differential Survival of Organisms